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THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES.

EDITED BY

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Journal de Médecine de Bordeaux. Redacteur en chef: M. Costes. July, August, September, October, 1859.

Journal de la Physiologie. Publié sous la direction de Docteur E. Brown-Séquard. July and October, 1859.

Ophthalmic Hospital Reports and Journal of the Royal London Ophthalmic Hospital. Edited by J. F. Streatfeild. July, 1859.

Edinburgh Medical Journal. September, October, November, Dec., 1859.

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The Journal of Psychological Medicine and Mental Pathology. Edited by Forbes Winslow, M. D. October, 1859.

The Glasgow Medical Journal. October, 1859.

The Medical Times and Gazette. October, November, December, 1859.

British Medical Journal. Edited by Andrew Wynter, M. D. October, Nov., December, 1859.

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The Boston Medical and Surgical Journal. Edited by W. W. Morland, M. D., and Francis Minot, M. D. October, 1859.

New York Monthly Review of Medical and Surgical Science. Edited by Austin Flint, Jr., M. D. September, October, November, December, 1859.

Southern Medical and Surgical Journal. Edited by Henry F. Campbell, M. D., and Robert Campbell, M. D. October, November, December, 1859.

American Journal of Pharmacy. Published by authority of the Philadelphia College of Pharmacy. Edited by Wm. Procter, Jr. November, 1859.

The New Orleans Medical and Surgical Journal, Edited by Bennet Dowler, M. D. November, 1859.

The American Journal of Insanity. Edited by the Medical Officers of the New York State Lunatic Asylum. October, 1859.

The New York Journal of Medicine. November, 1859.

The North American Medico-Chirurgical Review. Edited by S. D. Gross, M. D., and T. G. Richardson, M. D. November, 1859.

Charleston Medical Journal and Review. Edited by J. Dickson Bruns, M. D. November, 1859.

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The New Orleans Medical News and Hospital Gazette. Edited by D. W. Brickell, M. D., and E. D. Fenner, M. D. October, November, 1859.

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The Nashville Medical Record. Edited by Drs. D. F. Wright, T. L. Maddin, and J. H. Callender. October, December, 1859.

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The Pacific Medical and Surgical Journal. Edited by J. B. Trask, M. D., and D. Wooster, M. D. September, November, 1859.

The American Journal of Science and Arts. Conducted by Professors B. Silliman, B. Silliman, Jr., and J. D. Dana. November, 1859.

The American Medical Monthly. Edited by Drs. E. H. Parker, J. H. Douglas, and L. H. Steiner. October, November December, 1859.

Semi-Monthly Medical News. Edited by Drs. S. M. Bemis, and J. W. Benson. October, Novembor, December, 1859.

Nashville Journal of Medicine and Surgery. Edited by Drs. W. K. Bowling, R. C. Foster, and Geo. S. Blackie. October, November, 1859.

Atlanta Medical and Surgical Journal. Edited by Jos. P. Logan, M. D., and W. F. Westmorkland, M. D. October, 1859.

The Ohio Medical and Surgical Journal. Edited by John Dawson, M. D., and J. W. Hamilton, M. D. November, 1859.

Oglethorpe Medical and Surgical Journal. Edited by H. L. Byrd, M. D. November, 1859.

The Saint Joseph Journal of Medicine and Surgery. Edited by Drs. Heddens, Chambers, and Scearce. November, 1859.

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The Journal of Materia Medica and Pharmaceutic Formulary. Edited by Jos. Bates, M. D., A. Hutchins, and H. A. Tilden. October, November, December, 1859.

The Dental Cosmos. Edited by J. D. White, M. D., J. H. McQuillen, D. D. S., and Geo. J. Ziegler, M. D. October, November, December, 1859.

The Dental Register of the West. Edited by J. Taft and Geo. Watt. October, 1859.

Cleveland Medical Gazette. Edited by G. C. E. Weber, M. D. October, November, 1859.

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The Belmont Medical Journal. Edited by Wm. Estep, M. D., and E. Gaston, M. D. October, November, December, 1859.

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4. Minutes of the Tenth Annual Meeting of the Medical Society of the State of North Carolina, held at Statesville, May, 1859. 8vo. pp. 28.
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XXX. Urinary Deposits; their Diagnosis, Pathology, and Therapeutical Indications. By Golding Bird, M. D., F. R. S. Edited by Edmund Lloyd Birkett, M. D., etc. etc. A new American from the fifth London edition. With 80 illustrations on wood. 8vo. pp. 382. Philadelphia: Blanchard & Lea. 208

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Art. I.—*Remarks on the Treatment of Inflammation, with special reference to Pneumonia.* By L. M. Lawson, M. D., Professor of the Theory and Practice of Medicine in the Medical College of Ohio, Cincinnati.

The history of medicine affords ample evidence that the opinions of physicians, in past ages, were subject to numerous and extensive changes, constituting complete revolutions. The want of a scientific basis enabled the bold or ingenious innovator to supplant the received opinions of the day, and to substitute a new for an old error. But these revolutions are of ancient date. Modern medicine admits of improvement, but not revolutionary changes. In the present, or scientific age, we distinguish between isolated facts, and a connected series of events. The former are accidental and often deceptive; the latter, duly classified and arranged, embrace the entire series of facts and events bearing on the subject, and therefore constitute a science. The shepherd of Melampus could prescribe steel and wine for impotence, or hellebore for phrenzy, without any scientific knowledge of the nature of the disease, or the action of the remedies. And even Hippocrates, by his remarkable powers of observation, was often capable of forming an accurate prognosis, while he possessed but little knowledge of anatomical structures or pathological changes.

In the revolutionary ages, ill-observed facts and crude generalizations too often served as the bases of imposing systems, which reigned supreme until supplanted by others, more specious, but equally false. Thus, the Empirics subverted the doctrines of the Dogmatists, while the Methodists intervened and overturned the theories of their predecessors. And even in comparatively modern times we find the Mathematical school subverting the Chemical, and the Vitalists superseding the Humoralists. In these speculative systems, a single misinterpreted fact may occupy the place of a science; while obscure technicalities and bold asseverations, are mistaken for rational explanations. The elixir vitæ of Paracelsus, and the antidote of Mithridates, were as probable as the aurum potabile of Bacon, or the similia similibus curantur of Hahnemann; and the Androides of Albertus Magnus was as nearly a scientific revelation as the archæus of Van Helmont or the anima of Stahl. While the cell-evolution of Bennett, although intrinsically true, may, by ingenious misinterpretation, like the debility of Brown, and the spasm of Cullen, become the basis of an erroneous system.

But, within the scientific period—that is, since the successful cultivation of general and pathological anatomy, organic chemistry and general pathology—complete revolutions no longer take place. The attempts to introduce new systems usually result from some sinister cause. The efforts of Brown to subvert the doctrines of Cullen; the visionary and absurd hypothesis of Hahnemann; the crude system of the illiterate Thomson, with its more elaborate but equally empirical fructifications, must be regarded, severally, as the ebullitions of personal envy and jealousy, of dishonest pretensions, and extreme ignorance and presumption. They failed to subvert the regular and progressive course of scientific medicine; nor is it possible, in this age, to inaugurate a revolution. The science may and will be modified and improved, but its leading principles do not admit of sudden and violent subversion.

In opposition to this opinion, however, a recent attempt has been made to destroy some of the leading principles of therapeutics, and which, if carried into effect, would constitute a revolution. I allude to the doctrines recently propagated by Professor John Hughes Bennett, of Edinburgh, seconded, to a certain extent, by Professor Todd, of London, and partly in accordance with the views and practice of the sceptical school of Vienna. The essential features of this doctrine are, that inflammation cannot be properly treated by depletion, the increased flow of blood being a sanative process, but that the powers of the system should be sustained; hence, instead of bloodletting, we should resort to wine and beef-tea! In accordance with this opinion, we find Dr. Bennett treating *pneumonia* with an insignificant amount of salines, together with wine and beef-tea; while Dr. Todd administers brandy in the very commencement of *pericarditis*. Dr. Bennett, however, must be regarded as the propagandist of this doctrine; for while others rely on vague and deceptive statistics, he attempts to reduce the system to definite principles, and thus to place the whole on a scientific basis.

In a work entitled, *Clinical Lectures on the Principles and Practice of Medicine*, issued simultaneously in Edinburgh and New York, Dr. Bennett declares that the diminished employment of bloodletting and other antiphlogistic remedies of late years, does not arise from a change in the *type* of disease, as supposed by Drs. Alison, Christison, Watson, and the profession generally, but that the present advanced state of pathology and diagnosis has proved the former treatment to have been erroneous. Hence he concludes that inflammation is the same now it was in former years; and, consequently, that the experience of our predecessors, such as Cullen and Gregory, was based on false views of pathology and errors in diagnosis, and should not be received as guides. And to make the attempted revolution more complete, Dr. Bennett, in a stealthy paragraph, announces that mercury does not promote the absorption of lymph, and is, therefore, in that sense, useless in the inflammatory exudations. Without stopping to argue these questions, I shall introduce his third proposition, which will fairly open up the subject. It is thus stated :—

"*That the principles on which bloodletting and antiphlogistic remedies have hitherto been practised are opposed to a sound pathology.*"

In enumerating the principles on which bloodletting has *hitherto* been practised, Dr. Bennett assumes that it was employed for the following purposes: 1. To diminish the *materies morbi* of the blood; 2. To lessen the quantity of blood which flows *to* the part; 3. To diminish the increased quantity of blood *in* the part; 4. That the character of the pulse was assumed to be an index to the quantity of blood which ought to be drawn. These several points Dr. Bennett proceeds to controvert with great earnestness, and finally reaches the conclusion that practitioners have hitherto been employing their energies in a wrong direction, and that inflammation cannot be relieved by depletion. Let us examine his arguments in the order in which they occur :—

1. "*Can the materies morbi in the blood be diminished by bleeding?*"

This question Dr. Bennett answers emphatically in the negative; and who, let us ask, will assume the affirmative? Certainly no enlightened *modern* practitioner would seriously advocate an opinion which is a mere figment of ancient humoralism, now utterly repudiated by the world of pathologists. Still, Dr. Bennett declares that the "idea of diminishing the morbid matters in the blood has not only descended from Hippocrates to the days of Sydenham, but has come down from his to our own times." It is certainly untrue that physicians of the present day employ bloodletting for the purpose of removing the materies morbi from the blood; and it would appear, indeed, that Dr. Bennett has thus exhumed an obsolete idea for the purpose of giving force to his own untenable positions. So far, indeed, is this charge from the truth that we need not stop to argue its correctness, but merely to brand it as a libel on the intelligence of our profession, and a disingenuous effort to sustain a favourite theory.

2. "*Is it good practice to diminish the flow of blood* TO *the part?*"

This question, asked by Dr. Bennett, involves his main views in regard to the nature of inflammation, and his deductions as to the proper method of treatment. Of course he decides that it is *not* good practice to diminish the flow of blood to an inflamed part, but that, on the contrary, it is in accordance with sound pathology to augment the determination to the diseased structure, for the purpose of aiding certain ulterior changes connected with cell-growth. The main proposition will be regarded by most practitioners as a novelty in therapeutics, and it will be curious to ascertain how the author can produce even a shadow of reason to sustain an opinion so completely at variance with the received doctrines of the day.

In the first place, Dr. Bennett assumes that the *throbbing* witnessed during inflammation, is a *result* and not a *cause* of the morbid action, and that the blood inducing this phenomenon is not *forced* in by a *vis a tergo*, but is *drawn* in by a *vis a fronte*. And it is further assumed, that this superabundance of blood which is drawn into the part during inflammation, is a special provision of nature to promote cell-growth, whereby the exudation is broken up and rendered capable of being removed, either externally (by suppuration), by passage into the blood (absorption), or by excretion through the emunctories. To accomplish these changes, it is contended that an increased quantity of nourishing fluid is demanded, for example, such as occurs in the ripening of the Graafian vesicles; during the growth of the stag's antlers; in the mammæ during the secretion of milk; in the process of dentition; and during the ascent of sap in plants. Hence, Dr. Bennett declares that as this cell-growth occurs during inflammation, "it is absolutely imperative that the part in which these nutritive changes go on should receive more blood, to enable it to accomplish them." Bleeding, therefore, is an improper agent in inflammation, as it interferes with the nutritive acts necessary to accomplish a cure.

This is a condensed statement of the views entertained by Dr. Bennett, in regard to the nature of inflammation, and the process of cure. It will not be hazarding too much, I think, to assert that the whole statement is at variance with the phenomena of inflammation, no less than the soundest principles of practical experience and observation.

It is asserted by Dr. Bennett that the *throbbing* witnessed during the process of inflammation is produced by the blood being *drawn into* the diseased part, and that this increased flow is a provision of nature to favour cell-growth, and should therefore be encouraged. But unfortunately for this theory, it is all pure assumption, which is not only unsustained by any direct facts, but is actually disproven by certain considerations which I shall proceed to state.

A little attention to what occurs during inflammation will place this question in a proper light, and relieve it of all doubt or misapprehension. The inflammatory process is complex in its character, consisting in part of deranged circulation, which results in a complete *stasis* in the capillary vessels; and, as a consequence of this state of obstruction, the blood is unable to pass through the part, although an increased quantity may be forced into the structures. The result, therefore, is, that the blood being unable to pass, the arteries adjacent to inflamed tissues become dilated, and *throbbing* ensues. So long as the vessels remain unobstructed, and the blood flows freely through them, the phenomenon of throbbing cannot occur; but the moment the impediment is established, the *vis a tergo* causes the symptom in question. The power, therefore, which induces the throbbing is not a *vis a fronte*, by which the fluid is *drawn into* the part, but is in fact a *vis a tergo*, propelling the blood against an obstruction, the lateral pressure producing dilatation and pulsatory movement called *throbbing*. In making these observations I do not intend to assert that the phrase, "ubi irritatio, ibi affluxus," is untrue; on the contrary, it is evidently a correct observation that an irritation invites an afflux of fluids to the part. But this afflux is a mere initial stage, and induces only swelling and redness, until *obstruction* supervenes, when throbbing becomes a prominent symptom. It is not true, therefore, that the throbbing is evidence of a sanitary process, whereby nature supplies a large flow of blood in order to remove obstructions; but it is a *result* of an impediment to the free passage through the capillaries, and consequently the distension of the vessels adds to the morbid condition by introducing more blood than can be transmitted or consumed in the part.

This explanation, so obviously correct, is entirely at variance with Dr. Bennett's hypothesis. He assumes, it will be remarked, that the throbbing is an evidence of determination to the part, the fluid being *drawn into* the inflamed tissues for the purpose of aiding cell-growth in the transformation of the lymph exudations, and is therefore a sanative process. But instead of blood being *drawn into* the tissues for this or any other purpose, there is in truth complete *stasis* in the part, and consequently no blood can pass through the vessels involved in the morbid action.

Dr. Bennett's view of inflammation is that it begins *outside* the vessels, and that an *active* force draws the bloood *into* the capillaries, and the lymph *through* their walls. All this might be admitted, and yet it would neither sustain his view of the cause of throbbing, nor would it prove the impropriety of bleeding. The first tangible act of the inflammatory process is a determination of blood; and in relation to the present question it is quite immaterial whether the irritation originates within or without the vessels. The ultimate effect, however, is to induce stasis, as before explained, and this gives rise to the *throbbing;* and hence, the latter phenomenon is no evidence of an effort of nature to remove an obstruction by cell-growth, but is simply the sign of an obstruction preventing the free passage of blood.

In attempting to sustain the idea that an increased quantity of blood is a provision of nature to cure the inflammation, Dr. Bennett introduces, as analogous conditions, the increased flow witnessed in the ripening of the Graafian vesicles, in the secretion of milk, etc. These illustrations are peculiarly unfortunate, for they are simply physiological acts, and therefore cannot be regarded as analogous to the determination of blood connected with a morbid process. In fact these physiological acts do not bear the remotest resemblance to the changes which occur in the capillary vessels during inflammation. In the physiological state, there is simply an increased flow of blood; while in the pathological condition, the vessels become *obstructed*, and morbid *exudation* finally takes place.

If the determination to a part is restrained within physiological limits, then the active circulation, as in the secretion of milk, is beneficial; when the excitement is *morbid*, as in inflammation, there is a superabundance of blood, which, as John Hunter expressed it, is a load on the actions of the circulation, and therefore should be *reduced*. There is too much *excitement*, and too abundant a flow of blood, both of which are abnormal conditions, and should be diminished. But the question arises, can bloodletting diminish this morbid condition?

In the third place Dr. Bennett asks:—

3. "*Can bloodletting diminish the quantity of blood in the inflamed part?*"

This question he answers in the negative. Most assuredly, then, his previous argument, that bloodletting proved injurious by lessening the quantity of blood, and thereby checking cell-action, is wholly gratuitous; but not to take advantage of this evident discrepancy, we will proceed to show the fallacy of this third argument against bleeding.

Dr. Bennett expresses the opinion that the idea of lessening the amount of blood in the inflamed tissues constitutes one of the principal objects in bloodletting, and he denies that such an effect will follow. The chief reasons which he assigns for this opinion are: first, that the blood is stagnated in the inflamed part, and therefore cannot be withdrawn or lessened; second, that if it could diminish the blood in the vessels, it would not assist in removing the exudation which is outside. If the bleeding is large, he argues that it will prostrate the vital powers, and thereby prevent the transformation of the exudations; if the quantity abstracted is small, it cannot produce any effect. He thinks, also, that local bleeding is inefficient, because it cannot be explained on the ground of any direct anastomosis between the vessels of the surface and those of the inflamed part! "From these considerations," he says, "*it follows that neither general nor local bloodletting can possibly be supposed to diminish the amount of blood in internal parts affected with inflammation.*"

It would be difficult to crowd a greater amount of error in any similar number of words. Dr. Bennett appears to have misconceived the whole spirit of depletory practice, and constantly combats monstrous errors, which no sound pathologist for a moment entertains. In the first place, the chief object in abstraction of blood for the relief of inflammation, is not, as Dr. Bennett asserts, designed to withdraw the blood-corpuscles which have already become adherent, nor to remove the lymph which has exuded outside the vessels; but it is designed *to retard and limit, or even arrest, both the processes of stagnation and exudation.* And this is accomplished by diminishing the quantity of blood sent to the part, by lowering excitement, and thereby checking exudation. The stasis of blood, and the exudation of lymph, are evidently proportioned to the force of the circulation and the degree of inflammatory excitement; indeed, if there is any other law than the degree of excitement directly favouring these actions, I am at a loss to conceive its character. If the excitement and determination of blood are slight, the result will be merely active hyperæmia, or at most a moderate degree of inflammation, and consequently but little stagnation of blood, and a very small amount of exudation; but if the grade of action is high, a large amount of blood will be forced into the diseased part, stasis soon becomes extensive and complete, and the exudation of lymph active and abundant. And who can doubt that the destructive tendencies of inflammation, and the difficulties in securing resolution in ordinary cases, are precisely proportioned to the primary conditions of high action and copious exudation? For example, a moderate grade of pneumonia, limited in extent and intensity, is far less likely to prove fatal, than where a large amount of blood, in the form of active inflammation, is precipitated upon the pulmonary structures, giving rise to a copious effusion of lymph, blocking up the air-cells to an extent incompatible with life.

Now, it is precisely in these conditions of active inflammation that we resort, in the early stage of the disease, to bloodletting and other antiphlogistics, but not for the purpose, as Dr. Bennett states, of removing stasis and lymph, but to prevent or limit these conditions. Take, again, as an illustration, pneumonia, to which Dr. Bennett so often alludes. In the beginning of the disease we find the patient labouring under inflammatory fever, with a full and strong pulse, hurried breathing, cough, etc.; and a physical exploration of the chest reveals the crepitant rhonchus, with the accompanying signs of pulmonary engorgement and effusion of lymph, but short of consolidation. Under these circumstances, it is abundantly established by clinical experience (even by Dr. Bennett himself, as we shall see hereafter), that bloodletting, general or local, together with other antiphlogistics, will moderate the fever, reduce the force of cardiac and arterial action, *and thereby diminish the flow of blood into the inflamed tissues, and proportionally lessen the exudation of lymph;* and hence, if consolidation ensues, it will be comparatively limited in extent, and therefore the more readily resolved.

But Dr. Bennett's arguments apply to an altogether different stage of disease, and an altered degree of excitement. The cell-transformation, for which Dr. Bennett desires so much blood, and on account of which he objects to depletion, is nothing but *resolution*, and does not commence until the force of disease has subsided, and consequently the active stage of inflammation has ceased; hence the period when the vital forces are required to assist the changes connected with the absorption of the exudations, the organization of tissues or the formation of pus, is not the stage in which any enlightened practitioner, resorts to depletion. On the contrary, we deplete in the stage of *excitement*, and support the strength during the stage of resolution or cell-transformation. Dr. Bennett, therefore, misrepresents the practice on this subject. No judicious physician would think of depletion in the stage of resolution ; and no sound pathologist would attempt to increase or sustain the excitement during the forming or active stages of inflammation.

But it may be assumed that bloodletting, even in the early stage, will so far prostrate the system as to prevent the recuperative powers from removing the exudations. To this view I would oppose the argument, that the force of disease, unchecked by antiphlogistics, will tend to more complete and hopeless debility, than arises from judicious depletion ; and the difference in the two conditions is, that the prostration from disease alone is of difficult removal, while the debility arising from depletion is more likely to be temporary, and consequently restoration can be the more readily secured by stimulants and nutrients.

The resolution of pneumonia, or the cell-development of Dr. Bennett, is, evidently, a process of *degeneration;* that is, the breaking up of a consolidated lung is a retrograde action, by which the cells liquefy and absorption takes place. Here, as in other examples of inflammation, the two forms of exudation, coagulable and corpuscular lymph exist, and organization or liquefaction, as in other instances, depends on the predominance of one or the other. Mr. Paget observes that the larger the proportion of *fibrin*, the greater the probability of adhesions and indurations; and the larger the proportion of corpuscles, the greater the chances of suppuration or other forms of degeneration. Now, it will hardly be denied, that bloodletting, by lowering vitality, will lessen the amount of fibrinous exudation, and relatively increase the corpuscular, and thus diminish the chances of permanent consolidation. Bleeding, therefore, favours resolution, and hinders adhesions, consolidations, and indurations.

I am not unmindful of the assumed therapeutical law, that bleeding does not immediately reduce the proportion of fibrin. This may be true as an independent proposition ; but it is equally obvious, that a lowered vitality diminishes the plasticity of fibrin, and gives the predominance to corpuscular exudation. Hence, bleeding does, in that sense, diminish fibrinous exudation, although it may not be immediately perceived in its proportion in the blood. Bleeding, therefore, becomes appropriate in pneumonia, for the act of resolution is a process of degeneration, and requires a lowered action ; indeed, resolution does not commence until the activity of inflammation has ceased.

It may safely be affirmed, therefore, that the determination of blood to a part, during the early stages of inflammation, is not a conservative act, designed to favour cell-growth; but it is in fact a morbid process, the essential disease itself, ultimately causing the very products which require cell-action for their removal. And it is equally evident that depletion may lessen the quantity, and alter the quality of blood flowing into the inflamed tissues, and thereby limit the exudation, and the tendency to permanent consolidation. Hence the objections to bloodletting apply to the stage of resolution, and not to the early and active periods of the disease. Dr. Bennett's arguments, therefore, are fallacious, and his conclusions unsound.

Dr. Bennett's fourth proposition reads thus:—

4. "*That an inflammation once established cannot be cut short, and that the only end of judicious practice is to conduct it to a favourable termination.*"

This proposition constitutes a fundamental element in the non-bleeding *platform;* but its force is greatly lessened by the fact that even if true, still the violence of the inflammatory process might be greatly mitigated, and a favourable issue secured, although the duration of the morbid action might not be materially abridged. But, passing by this view, let us inquire how far the proposition is intrinsically true, that inflammation must necessarily run its full and complete course.

Dr. Bennett proceeds to show that there are certain forms of disease which cannot be cut short by treatment, but are permitted to run a natural course, among which he mentions typhus fever and smallpox, and adds: "It appears to me that the same rule ought to hold with regard to the internal inflammations," etc. It must certainly be regarded as a very unsound doctrine that simple inflammation is subject to the same pathological laws that govern *specific* disease, and that because the latter run a natural course, no effort should be made to curtail the duration of the former. In support of the opinion that inflammation does not require nor admit of depletory treatment, Dr. Bennett introduces, as analogical conditions, the changes connected with fractured bones, divided tendons, and the resolution which occurs in contusions and lacerations. But how widely different are these processes of repair, which hardly vary from physiological growth, from the morbid action occurring, for example, in pneumonia! In the latter disease, the tissues are filled with blood, copious exudations obstruct the air-cells, and a vital function thus becomes rapidly impaired. Surely there is no analogy, in a true pathological sense, between such a condition, and that which occurs in the repair of a fractured bone, or the union of a tendon after subcutaneous section. It certainly does not follow that, because the surgeon would not bleed in ordinary cases of repair, the physician should equally abstain from depletion in cases of severe visceral inflammation. If, however, we admit the analogy, the difficulty will not be removed; for, as shown by Mr. Paget, *repair* does not commence while there exists a high grade of inflammatory action, and it is only after a subsidence of the morbid state that the physiological process of repair begins. And so, too, of visceral inflammation; resolution does not begin until inflammation ceases or abates, and hence the necessity of appropriate depletion.

But one of the most palpable errors into which Dr. Bennett has fallen is the supposed similitude between specific disease and simple inflammation. What modern pathologist could for a moment believe that essential fever and local inflammation are governed by the same laws, or that smallpox and pneumonia must equally run a natural course, uninfluenced by medical treatment. It has assuredly been reserved for the great Edinburgh pathologist to utter this profound doctrine, and as an evidence, too, of the present advanced state of pathology. The doctrines of Broussais, of Clutterbuck, and of Pinel, would be no more absurd at the present day, than this idea of a parallelism existing between essential fever and local inflammation. The former is the result of specific causes, which requires a definite and even fixed period for its evolution; the latter may result from general or non-specific causes, and therefore requires no definite or fixed period for its development and decline. Thus, the duration of typhoid fever uniformly presents an average of three weeks, being incapable of reduction below that period; while pneumonia varies in duration from four or five days to quadruple that period. Certainly the similitude is not very striking between specific and non-specific disease, and any opinion based on such an assumption is wholly fallacious.

Still Dr. Bennett insists, as a fundamental proposition, that inflammation once established cannot be cut short; and hence bloodletting—which would not only fail to limit the inflammatory action, but would prove injurious by interfering with the transformations of the exudation—should be abandoned. Dr. Bennett's opinion that inflammation cannot be cut short is evidently based on his peculiar definition of that process, which is, that inflammation consists in "*an exudation of the normal liquor sanguinis.*" Therefore, inflammation is evinced by the exudation of liquor sanguinis, and when this occurs, the process cannot be cut short, but must pass through its regular stages of adhesion, suppuration, granulation, cicatrization, etc. These statements are extremely erroneous, and, indeed, may be regarded as fairly begging the question. In the first place, it is neither an admitted doctrine, nor proven by Dr. Bennett, that inflammation may not exist, in all its essential characters, without the exudation of lymph; and even when exudation has commenced, there is every reason to believe, that judicious depletion may check the effusion, and thereby *shorten* the duration of the disease, which, in a therapeutical sense, is equivalent to cutting it short.

A little attention, however, to what occurs during the forming periods of inflammation, as observed in the web of the frog's foot, and other transparent structures, will serve to place the question in its true light. An irritant applied to the part produces the following effects: 1. Contraction of the vessels; 2. Dilatation; 3. Irregular movement of the blood; 4. Stagnation; 5. Exudation. Now the question arises: Does not *inflammation* exist until the fifth or last stage?

Without entering into any speculative considerations as to the essential nature of inflammation, it may be safely affirmed that the demonstrable part of the process is *intra-vascular*, and that the exudation into the interstitial tissues is altogether secondary, is variable in character and extent, and may or may not occur. The interstitial changes embrace exudation of lymph, adhesions, formation of vessels, suppuration, and so on; but these conditions are variable in degree and character, and are merely *results* of the primary lesion. Hence, the exudation of lymph is no more an essential part of the inflammatory process, than is the secondary changes of adhesion, suppuration, or gangrene. In illustration of this subject, it may be further remarked, that inflammation is known to occur in certain tissues without the effusion of lymph, as, for example, in cartilages (Goodsir, Redfern), and in the cornea (Virchow). And in addition to this we may add, that inflammation of the mucous and dermoid tissues may often exist with little if any exudation of normal liquor sanguinis. Indeed, the elimination from the surfaces of mucous tissues, in moderate degrees of inflammation, seem merely modified mucus, or, at most, the corpuscular variety of lymph, and therefore cannot with propriety be called *normal liquor sanguinis*. The *essentials*, therefore, of inflammation, in a practical sense, consist in the local excitement, engorgement of the vessels, stasis of blood, and a *tendency* to exudation of normal liquor sanguinis, which latter may or may not occur.

So far, therefore, as pathological conditions serve as therapeutical indications, there is no room to doubt that the essential process of inflammation is, under certain circumstances, amenable to timely and judicious medication, and that it need not, as Dr. Bennett supposes, necessarily pass through all its stages, or run a natural course. And it is quite immaterial whether we adopt or reject the proposed definition of inflammation, for it may be in technical terms correct, and yet the deductions entirely erroneous.

But the ingenious theories based on obscure definitions, and the deductions from hypothetical premises, are most certainly corrected by practical observations and clinical experience; and hence, that which the speculative pathologist attempts to establish by abstract reasoning and forced analogies, the practitioner refutes by daily experience in the treatment of disease. Thus the theorist asserts that inflammation cannot be cut short by treatment, and he proves the assertion by hypothetical conclusions; while the enlightened physician is taught by practical experience that timely depletion will either mitigate the violence, shorten the duration, or arrest the progress of inflammatory action.

Inflammation of the air-passages and pulmonary substance affords some of the most conclusive examples in support of the opinion that phlogistic disease can be arrested short of its full and complete course. Thus, a child is attacked with fever, cough, hoarseness, and difficult inspiration; this is the forming stage of croup, *prior to the effusion of lymph*, but still a state of inflammation. If such patients are bled, vomited, and purged, the symptoms subside and recovery ensues. On the contrary, if left to nature (or, according to the new theory, *supported*), the violence of morbid action rapidly increases, a false membrane is formed, and the child dies, not exhausted, but asphyxiated. These are the probabilities; and so constant and uniform are the results, that clinical experience has established a scientific rule in practice. And the same events occur in pneumonia, both in children and adults. A world-wide experience demonstrates that this affection becomes fatal in an exact ratio with its duration prior to treatment. Grisolle observed, with the greatest accuracy, a direct relationship between the mortality in pneumonia and the period when treatment was commenced. Thus, in cases admitted within the first three days, the mortality was one in thirteen; within four days, one in eight; within five days, one in six; within six days, one in four; within seven days, one in three; and when eight days had elapsed, one-half perished! Such facts are incontrovertible. They clearly exhibit the influence of treatment (antiphlogistic) over the course of disease, in moderating its violence, and leading to a favourable result. But we need not resort to statistical evidence to establish the influence of treatment either in arresting the progress or mitigating the violence of inflammatory disease; for no amount of speculative pathology or ingenious hypotheses can subvert the clinical experience of the great body of our profession.

In attempting to form correct opinions in relation to the influence of depletion over inflammatory action, it is a very partial and erroneous view to limit our observations to what is taking place in the capillary vessels. Dr. Bennett may be able to see nothing in the inflammatory process except the effusion of lymph, nor to comprehend any therapeutical act save that of cell-transformation as observed in adhesions, suppuration, and gangrene. But the practical pathologist and therapeutist sees in addition the commotion produced in the general system; he does not, with Dr. Bennett, ignore the *inflammatory diathesis;* but he fully appreciates the abnormal excitement of the heart, arteries and nerves, and the relation which this condition sustains to the local disease. He is at the same time fully aware of the changes which are taking place in the capillaries; he knows that the *stasis* will be in proportion to the violence with which blood is not only *drawn* but *forced* into the diseased part, and that the exudation will in turn bear a direct relationship to the degree and extent of stagnation. Furthermore, it is evident that the destructive tendencies of inflammation, either in arresting the functional action of important viscera, or in those secondary changes connected with adhesions, suppuration, gangrene, and so on, will be proportioned to the extent of effusion, not less than the recuperative powers of the system. Hence the philosophical practitioner seeks to limit the morbid process by lessening the inflammatory diathesis, where the disease is not purely local, and for this purpose he reduces vascular and nervous excitement generally, and either arrests inflammation or limits its violence and destructive tendencies.

It is a most palpable and serious error to attempt to draw indications of treatment from what occurs during the stage of cell-transformation, a period when the essential process of inflammation has ceased, and when brandy and beef-tea might be tolerated or even demanded. It is thus by looking alone to the terminal acts of inflammation—the conservative or destructive part of the process, as the case may be—that Dr. Bennett and his coadjutors have committed the great error of rejecting depletory treatment, and encouraging an indiscriminate stimulation. Whereas, the discriminating practitioner adapts his remedial agents to the constitution of the patient, and the stage and character of the disease; and thus he is often obliged to deplete in one stage, and stimulate in another, thereby protecting the system from the violence of over-action, and sustaining the vital powers during resolution.

The following is Dr. Bennett's fifth and last proposition:—

5. "*That all positive knowledge of the experience of the past, as well as the more recent observations of the present day, alike establish the truth of the preceding principles as guides for the future.*"

Dr. Bennett here reaches the culminating point. Having, as he assumes, established his principles, he deduces the preceding proposition, and remarks that "the more exact observations of the present day" establish these doctrines as guides in practice. What Dr. Bennett means by "the more exact observations of the present day" is, I presume, his own opinions; at least the propositions which constitute the basis of his views are purely his own for, with the exception of Dr. Todd, and some of the experimentalists of the school of Vienna, they have certainly received no countenance from the lights of our profession. We do not find Alison, Christison, Watson, Copland, Jenner, Walshe, Barlow, etc., advocating such principles; nor have they thus far received the sanction of that test which all rules of practice must undergo—*the experience of the great mass of practitioners.* Closet-practitioners, and men striving for notoriety, may weave a thousand intangible but spacious theories, but it requires the crucible of clinical experience to separate the dross from the gold.

We might fairly leave this fifth proposition to its own inevitable fate, for having, I think, shown the fallacy of the hypotheses on which it rests, the conclusions must necessarily fall with the premises; but inasmuch as Dr. Bennett has reserved for this concluding part certain *statistical* evidence, embracing his own experience, it is proper to give it that attention which the importance of the subject so clearly merits.

Most observers perceive and acknowledge the difficulties and uncertainties attending *statistics* connected with the practice of medicine; and we shall presently see to what extent these difficulties authorize us, in the main, to reject such evidence as faulty and unreliable. And however much we may admire the patience and industry of a Louis in attempting to create the *numerical system*, it must still be admitted that such facts are of necessity partial and inconclusive, and therefore unreliable data in the practice of medicine. In the language quoted by the distinguished Dr. Watson, it is better to *watch* than to *count*.

But as the opponents of depletory remedies in the treatment of inflammation depend largely on statistical facts to support their views, it becomes necessary to advert to this branch of the subject. The particular disease which has been seized upon is *pneumonia;* and it will be found, upon examination of the subject, that it has proved a very prolific, if not a very conclusive theme, and that the facts elicited are as contradictory as they are numerous. It is unnecessary to bring up in review all that has been published on this subject; but it will be sufficient to notice the most striking statements, and especially such as have been chiefly relied on by those opposed to bloodletting. In the *British and Foreign Medico-Chirurgical Review*, July, 1858, is a copious summary of this kind of evidence, from which I shall draw some materials bearing on this question; but it is the statements of contemporaneous observers, such as Bouillaud, Dietl, Wunderlich, Bennett, Bell, and Balfour, which are most valuable.

Bouillaud, of the French school, may fairly be considered, as *par excellence*, the leader of the bloodletting party of the present day; and his bleeding, *coup sur coup*, may be deemed an extreme test of the influence which *severe* depletion will exercise over pneumonia.

He thus states his method in pneumonia:—

"Bleed in the morning of the *first day* to sixteen, and in the evening to twelve or sixteen ounces. In the interval cup to the same amount, or apply thirty leeches. On the *second day* bleed again, and if pain still continues cup or leech. The disease, fortunately, for the most part yields on the *third day*. If otherwise, don't hesitate, but bleed again; but usually it is better to apply a large blister. As a rule you must not give up bleeding until fever, pain, and dyspnœa have almost ceased."[1]

Bouillaud states that he usually abstracted from four to five pounds of blood, the largest quantity being ten pounds, which was taken from a patient who recovered. He records the mortality to have been in 102 cases 1 in $8\frac{1}{2}$.

This must be considered heroic bloodletting; and when we remember that it was indiscriminately employed, having but little reference to age, sex, stage of disease, or constitution of the patient, it may be considered as remarkable success, and exhibits a point of great significance in the treatment of the disease. If, indeed, bloodletting is so unconditionally evil, as

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[1] Medico-Chirurgical Review, from Traité de Nosographie.

Dr. Bennett would have us believe, Bouillaud's patients should have all died; but, instead of this disastrous result, we find a mortality of only 1 in 8½, which is fair success for hospital practice.

Let us now look at another extreme. Dr. Balfour observed the results of treatment in the Homœopathic Hospital of Vienna, under the care of Dr. Fleischmann, and states the mortality at 1 in 6⅗. It will, of course, be conceded that homœopathic treatment is equivalent to non-interference, and we thus acquire some knowledge of the natural history of the disease. In this example, it appears, the mortality was large, which teaches two facts—that homœopathic treatment is unsuccessful, and that the disease in that instance tended largely to a fatal result.

Now, by contrasting Bouillaud's bloodletting with Fleischmann's negative treatment, it will be perceived that the results are favourable to the former; and if any induction is warrantable from such facts, it is that even excessive and indiscriminate bloodletting is better than unaided nature, and, therefore, depletion possesses positive curative powers.

The statistical evidence on which Dr. Bennett places most reliance (except his own) is that furnished by Dr. Dietl, of Vienna, which is classed under the head of "*treatment by diet.*" It appears that Dr. Dietl adopted three methods of experimental treatment: 1. By venesection. 2. By tartar emetic. 3. Dieting, with mild ptisans. The following is a general summary. Whole number treated, 380:—

1. By venesection 85, of whom 17 died = 1 in 5.
2. By tartar emetic 106, of whom 22 died = 1 in 5.22.
3. By diet 175, of whom 14 died = 1 in 13½.

According to the face of this statement *nature* cures between two and three times as many cases of pneumonia as bleeding and antimony; *ergo*, bleeding and antimony should be abandoned, and the disease left to the recuperative powers of nature. There are, however, certain considerations which materially impair the force of Dietl's conclusions, and take from his figures their seeming authority. It will be remarked that Dr. Dietl treated his cases exclusively by a single remedy—bleeding or antimony—and these were evidently employed indiscriminately, and consequently must have been prejudicial in a certain proportion of the patients. Nor is it less important to remark, that no judicious practitioner would limit himself to a single agent, to be employed in all stages and conditions; on the contrary, he would resort to a combination of remedies to meet the indications of different cases and stages of disease. It is not surprising, therefore, that the indiscriminate use (or rather *abuse*) of a single *active* agent should give rise to a mortality equal to that reported by Dietl; nor is it at all strange that unaided nature should, in the aggregate, produce more favourable results than the palpable abuse of the most active agents we possess. Hence, Dr. Dietl's figures cease to be authoritative, and his conclusions must be regarded as fallacious.

In addition to these considerations, Dietl's conclusions are entirely neutralized by the reports of Wunderlich, of Liepsic. His cases may be thus stated:—

1. In 114 cases loss of blood occurred (by general and local bleeding, epistaxis, menstruation), of whom 9 died = 1 in 12.6.

2. 47 cases treated by venesection, 3 died = 1 in 15.6.

3. 76 cases without loss of blood, 13 died = 1 in 5.8.

It is also remarked by Professor Wunderlich, that bloodletting exercised a marked influence over the duration of the fever, or in promoting *defervescence.*

Without attaching any very great intrinsic importance to these statements, they are evidently entitled to as much credit as those of Dietl; and as they are precisely the reverse of the results obtained by the latter, they at least serve to place statistical inquiries in their true light, and to render us cautious in attaching too much confidence to *figures.*

But let us turn to the results of Dr. Bennett's practice. He informs us that he now abandons all effort to cut the disease short, but during excitement gives small doses of salines, *with the view of diminishing the viscosity of the blood;* and, as soon as the pulse becomes soft, orders beef-tea and wine. This course, the author states, he has carried on in the clinical wards of the Royal Infirmary during the last eight years, in which time he has treated 65 cases, of which 3 died, giving a mortality of 1 in 21⅔. The average age was 31; average duration of single uncomplicated cases 14½ days, and of the double uncomplicated, 21 days.

From these statistical statements, Dr. Bennett draws the following conclusions:—

1. That the result of a vigorous antiphlogistic treatment, as formerly practised, is a mortality of 1 in 3.

2. That the result of treatment by large doses of tartar emetic, according to Rasori and Dietl, is 1 in 5; but according to Laennec, 1 in 10.

3. That the result of moderate bleeding, as in the treatment of Grisolle, is a mortality of 1 in 6½.

4. The result of dietetic treatment, with occasional bleedings and emetics, by Skoda, is 1 in 7.

5. That Dietl's dietetic treatment gives a mortality of 1 in 13.

6. That Dr. Bennett's treatment gives a mortality of 1 in 21⅔.

It is evident from these statements that Dr. Bennett believes he has attained the highest degree of success in the treatment of pneumonia, and that Dietl stands next, the mortality being, respectively, 1 in 21⅔ and 1 in 13. We have the facts before us, however, to prove that other persons, and by depletory treatment, too, have secured still more favourable results, and, so far as statistics are reliable, establish the correctness of antiphlogistic treatment.

By referring to the *British and Foreign Medico-Chirurgical Review*, July, 1858, the following facts will be found:—

Reuf treated 94 cases of pneumonia by bleeding and antimony, of whom 5 died = 1 in $18\frac{4}{5}$.

Bang, of Copenhagen, treated 54 cases with antimony and bleeding, of whom 2 died = 1 in 27.

Trousseau treated 52 cases in Hôtel Dieu, with bleeding and antimony, 2 died, = 1 in 26.

Wossildo treated 76 cases, between the ages of seventeen and seventy (5 above sixty), by general and local bleeding and antimony, *none died!*

Burkart treated 60 cases by bloodletting, in 1854, when the type was inflammatory, with only one death, and that one was complicated with tubercles; hence he cured 59 uncomplicated cases without the loss of one.

We may now fairly ask, What is the basis of Dr. Bennett's conclusion, that his success has been greater than others? In vain may he appeal to former statistics of the Royal Infirmary, showing a mortality of 1 in 3, or to the results of treatment by Chomel, Louis, and Grisolle, where powerful remedies were almost indiscriminately employed; for, notwithstanding these statements, we find better results in the hands of other practitioners, and which equally deserve to be contrasted with the statistics of Dietl and Bennett. Thus, Dr. Bennett loses 1 in $21\frac{2}{3}$, while Trousseau exhibits a mortality of only 1 in 26; Bang, 1 in 27; Burkart, 1 in 59; Wossildo, 1 in 76! Surely, Dr. Bennett's success, compared with these triumphant results, dwindles to insignificance; and if we are to be guided by statistical evidence, then should we bleed and give antimony, to secure the most favourable rates of mortality.

The result of Dr. Bennett's treatment requires a special remark. In the first place, his cases were very few in number, being only 65 in eight years, which is evidence that pneumonia did not prevail as an epidemic, and consequently that he encountered only sporadic or mild cases. In addition to this, the patients were comparatively young, the average age being thirty-one; and 55 were uncomplicated, of which 40 were single. It is stated by Dr. Bennett, also, that six of the cases which recovered were bled and subjected to antiphlogistic treatment before entering the Infirmary—a fact of no small importance in estimating the general results. There is another significant fact which deserves to be noted in this connection. It is distinctly stated in the Review already referred to, that during the period covered by Dr. Bennett's cases, pneumonia was remarkably mild throughout Scotland, and that the mixed treatment (bleeding, antimony, and mercury) adopted by Dr. Bell, of Glasgow, was equally successful with the non-bleeding treatment by Bennett.

It will not, perhaps, be uninteresting to remark, that historical reminiscences often throw great light on the progress of medical doctrines; and in connection with our present subject, a very brief retrospect will show that Dr. Bennett's antecedents have been very different from his present position. It is true, there is no offence against either good morals or sound philosophy in changing opinions as our views become enlarged and matured; but a change so complete and radical as exhibited in the present example, and based too, in both instances, on practical observations, is too remarkable to pass unnoticed. In fact, personal history becomes in some sense a part of science, especially when great innovations are based on individual experience. In his *Clinical Medicine*, published in February, 1858, Dr. Bennett declares that the course of treatment now recommended has been pursued by him for the past *eight years*. We find, however, in the *Edinburgh Monthly Journal*, August, 1851 (six and a half years before), the following language employed by Dr. Bennett in a clinical lecture:—

"I have on a former occasion pointed out the rule which, as it appears to me, should guide you with regard to bleeding in pneumonia. If you are called to a case at a very early period before exudation is poured out, and before dulness as its physical sign is characterized, but when, notwithstanding, there have been rigors, embarrassment of respiration, more or less pain in the side, and commencing crepitation, *then bleeding will often cut the disease short*." (I have Italicized the most important part.)

How different Dr. Bennett in 1851, and Dr. Bennett in 1858! *Then* his clinical experience taught the important practical rule that bleeding, at the proper time, *would* cut short a pneumonia; *now* he emphatically declares that no such result can possibly ensue from depletory practice! In confirmation of his opinion held in 1851, he details one decided case in which the abstraction of ℥xv of blood was followed by marked relief, *even crepitation subsided*, and the patient rapidly recovered. The question, therefore, naturally arises, did Dr. Bennett observe, in 1851, that pneumonias were cut short by bleeding, or was he incompetent, as a diagnostician, to decide what actually occurred? Certainly we cannot doubt either his veracity, or his skill to trace the different stages of pneumonia, by the physical signs and general symptoms; and his observations at that period, unobscured as they were by a favourite theory, or deceptive statistics, will remain an incontrovertible disproof of his present speculative opinions. Nor is Dr. Bennett consistent with himself in his new position. He treats pneumonia, during the state of excitement, by salines, to diminish the viscosity of the blood; but, according to his theory, he should at the same time give brandy and beef-tea, in order to secure a large flow of blood. Truly, theory and practice do *not* always agree.

Some attempt has been made in our own country to develop the statistics of pneumonia. Dr. Austin Flint, Professor of Clinical Medicine in the New Orleans Medical College, has published a series of fifteen cases, occurring in the Charity Hospital, New Orleans, which were treated from the beginning with quinine, opium, stimulants and nutrients. It will be seen, however, by reference to Dr. Flint's commentaries on the cases, that he does not claim them as a fair type of the disease in general, nor does he assume to exclude, in appropriate cases, depletory practice. On the contrary, the cases reported by Dr. Flint were, as he admits, evidently broken down in constitution, having long suffered with intermittent fever, and from the influences of exposure and a hot climate. We can readily understand, therefore, that these and similar examples, where miasmatic diseases prevail, may often require tonics and stimulants from the very onset, and entirely forbid all depletion.

Such facts, however, are far from establishing a general rule; for it is well known that pneumonia occurring under different climatic and endemic influences requires a very different course. This general fact is well illustrated in what occurred in the Louisville Marine Hospital, in 1855. The report for that year shows the number of cases to have been 37, of whom 18 died. I am not in possession of all the facts connected with these cases, but it has been stated that Dr. Flint, who had charge of the hospital during the winter, treated them mainly by the exhibition of opiates, and without bleeding, antimony, or mercury. It was, therefore, essentially an expectant and anodyne course; and the result contrasts strongly with the treatment in the New Orleans cases. I am not aware of any example on record in which the modifications of disease, demanding a corresponding difference of treatment, is more clearly exhibited than in these two classes of cases.

It becomes an important question for the practitioner to decide, how far confidence can be placed in medical statistics, especially such as bear on this subject, and to what extent such evidence can be made a guide in the treatment of disease? An examination of the statistics of pneumonia, which occupy so important a position in Dr. Bennett's theory, will reveal results so variable and contradictory as to deprive them of the slightest claim to authority. Thus, without depletion, Dr. Bennett's statistics show a mortality of 1 in 21¼; Dietl's, 1 in 13; the homœopathic 1 in 6; and the non-bleeding plan in Vienna, in 1856, 1 in 4. With antimony, bleeding, &c., Grisolle lost 1 in 8, Dr. Bell 1 in 17.7, Trousseau 1 in 26, Burkart 1 in 60, Wossildo none in 76. Pneumonia treated by inhalation of chloroform furnishes the following mortality: in the hands of Baumgärtner 1 in 10, Varrentrapp 1 in 23, Wucherer 1 in 90! In the Royal Infirmary, Edinburgh, former statistics show a mortality of 1 in 3; and this constitutes, mainly, the foundation for Dr. Bennett's denunciation of depletory treatment.

In addition to this, Kissel treated 112 cases, with a mortality of 5 = 1 in 22⅖. When the urine was alkaline he gave iron; when it was acid he gave copper.

Here is exhibited a very wide range of figures. The non-bleeding plan varies from 1 in 4 to 1 in 21⅔; the antiphlogistic from 1 in 3 to 1 in 90. Are not these results too variable to constitute any sound basis of practice?

If we take Dr. Bennett's statistics, we would certainly not deplete; if we take Wossildo's results as the guide, we will as certainly resort to blood-letting; but if we chance to adopt the tables of Wucherer, then we will administer chloroform! or iron and copper, if we depend on Kissel. Each partisan will find his theory fully sustained by these figures; but the judicious practitioner will perceive that some unseen agency has modified the results, and that the mere figures are but so many fallacies. It is evident, therefore, that the statistics of pneumonia, as a whole, are utterly worthless and unreliable as practical guides.

If we seek an explanation of these contradictory results in the treatment of pneumonia, it will be found in the numerous qualifying conditions connected with age, season, climate, epidemic and endemic influences, early treatment, stage, extent, and complications of the disease. And to these conditions we must add, in a general sense, the *individuality* of each case; indeed, so great are the differences in constitutions, that no two examples will exhibit the same characteristics throughout, nor will they admit of precisely the same method of treatment. And it is a due appreciation of these more minute shades of differences, as well as the broad distinctions observed in the varying *forms* of the disease, that constitutes the truly skilful physician, and which enables him to meet the emergencies of each case, instead of relying on conclusions drawn from *groups* of cases.

Viewing nationalities in a somewhat prejudiced light, a critical writer intimates that the English think more of some other case than the one under treatment, while the French think more of the disease than of the patient; hence the former individualize the disease, the latter generalize the patient; but the true course is that indicated by Hufeland, to *generalize the disease and individualize the patient.* It is quite immaterial to our present purposes, whether these distinctions exist among French, Germans, and English, or not; but we cannot fail to observe their strong development in individual writers. Statisticians rob each case of its individuality, and cast it upon the sea of uncertainties pertaining to others of a different character. Thus one series will all be bled, another will receive tartar emetic, and a third left to the chances of nature. In the first class, some are bled who should have been stimulated; in the second, tartar emetic is administered when bleeding would have been preferable; and in the third class, some are permitted to die from mere over-action. In this blundering, if not criminal procedure, individuality is ignored, and the practitioner prescribes for a mere *name*, leaving the patient to the mercies of chance or fate.

It is evident, therefore, that a rational treatment must secure to each case its own individuality; and as the shades of differences, and the corresponding modifications of treatment cannot be expressed in *groups*, statistics, in this sense, become simply an impossibility. For example, bleeding, antimony, mercury, and blisters, may be demanded in one case;

quinine, opium, and wine in the next; a third may require but little interference, except a well-regulated diet with moderate stimulants; and so on, *ad infinitum.* The treatment of pneumonia demands not a single but many agents; and he who would attempt to develop results by statistics, will be required to make each group a *unit.* It is the proper *combination* of remedies, and not a single agent or mode of practice, which is capable of securing the best results in the treatment of disease.

The preceding considerations render it abundantly evident, that mere statistical tables have not furnished the class of facts on which practitioners can rely in the selection of remedies; and, indeed, the only important revelation which has been made is, that, under certain conditions pneumonia manifests a stronger tendency to spontaneous recovery than could otherwise have been known. Dietl, for example, under a system of mere diet, reports the mortality of only 1 in 13, which is more favourable than resulted from the systematic course pursued in Paris. But the presumption is very strong that Dietl's cases were of that grade which tend to spontaneous recovery; at least we have the important contrary fact, that in 1856, the non-bleeding treatment of pneumonia in Vienna was very unsuccessful, the mortality being 1 in 4! Doubtless, however, uncomplicated pneumonia, when single and occurring in good constitutions, would generally recover without the aid of medicines; *and the same is true of a large proportion of other diseases.* Many cases of typhoid fever, measles, scarlatina, smallpox, and so on, would recover without the intervention of art, or the aid of a physician. But these facts establish nothing in the premises; nor can any evidence be adduced to prove that suffering may not be mitigated, and life often saved by the timely and judicious application of remedial agents. Some examples of disease may safely be intrusted to the recuperative powers of nature; but even in this sense there are few cases which might not be benefited by proper medication. Some cases require strong remedies, others weak ones; and it is the function of the enlightened physician to determine when his strong and when his weaker agents are to be brought into requisition; when he is to trust mainly to the *vis medicatrix naturæ;* when to sustain the faltering powers of life; or when to subdue vehement action, which, by its own violence, threatens destruction to the animal economy.

It has been observed, however, that the treatment of inflammatory diseases has materially changed within recent periods, depletion having fallen into comparative disuse, and that this important modification is due to a better comprehension of morbid action. This observation, although only partially true, might be admitted without solving the question at issue. Medical science, and, based on this, medical *art,* is progressive; we, in modern times, know more of pathological changes and therapeutical actions than did our predecessors; and hence we measure the influence of the one by the character and degree of the other with more accuracy than formerly.

The natural history of disease has been more carefully studied; and its tendency to spontaneous cure, or a fatal termination, materially modify therapeutical applications. Hence, a juster comprehension of pathological changes, and a broader and more enlightened experience, have taught us that essential fever is not to be cured by depletion; that remittent fever is, as a rule, more efficiently treated by quinine than mercury and bleeding; and so, too, have we learned that excessive depletion in pneumonia may often be dispensed with, and a more conservative course advantageously adopted.

But the question recurs, whether the diminished employment of blood-letting has resulted exclusively from the advanced state of pathology, or whether it is not due to a change in the *type* of disease, whereby depletion is less frequently demanded. Drs. Alison, Christison, Watson, and others, declare that the type of inflammatory affections has changed, having become less *sthenic*, and, consequently, the lowered grade of action no longer requires copious depletion; while on the contrary, all this is denied by Dr. Bennett, who asserts that no change of type has occurred, but that the modification of practice is due to a more enlightened pathology; and on that advanced pathology he predicates his peculiar views.

These are questions not easily settled by the mere pathologist or the logician. Dr. Bennett may demonstrate that cell-action, and the laws governing the process of exudation, are the same now that they were in the days of Cullen and Gregory, or even of Hippocrates and Æsculapius; but the observation is radically defective, because it ceases precisely where it should have begun. The demonstration should ascend from the local affection to the constitutional reaction; and thus by measuring the degree of excitement, reveal the diathesis of the disease. In fact, the evidence that the type of disease fluctuates in intensity, must be derived from personal observation and experience, in relation to the conditions of the general system, rather than the revelations of the scalpel or the microscope, concerning the minute changes in inflammation. And it is no more possible to establish such a fact by *statistical* evidence, than it would be in the same manner to prove the exact agency of psychological influences in the production or aggravation of disease. But there is an experience and observation altogether above mere arithmetical calculations; and it is from this broad and reliable evidence that we learn the fluctuations of disease in different seasons, years, and periods of time.

The variation of inflammatory affections may be clearly observed, on a limited scale, in what occurs during the different seasons of a single year. Thus it is well known that inflammatory diseases bear and require more antiphlogistic treatment during winter than summer. But still more distinctly are these variations observable in different years; indeed, every practitioner must have remarked that the same classes of disease manifest a much higher grade of action, and require more depletion during some years than others. And, if this is true of seasons and years, there is no obvious reason why the same influences may not extend through longer periods or cycles of time. In our own country we have numerous illustrations bearing on this question of the change of the type and character of disease. Thus it is well known that, since the prevalence of Asiatic cholera in 1832, there has been manifested a greater degree of irritability of the alimentary canal, and consequently diminished tolerance of cathartic medicine. Purgatives have fallen into disuse, since the days of Hamilton, even to a greater extent than has bloodletting since the days of Cullen and Gregory. And it may be safely affirmed that the change of practice in this respect cannot be ascribed to an improved pathology, but to a broad and enlightened experience growing out of an obvious change in the *type* of disease.

In the western and southern portions of the United States another and even more striking change has occurred. The endemic fevers of this vast region were originally of the periodical type; but as early as 1842 we were invaded by well-defined continued (typhoid) fever, which in many localities superseded the periodical fevers. The continued type predominated in many localities for a period of ten years, since which time it has gradually diminished, while periodical fever again becomes more common. I do not assert that these changes were radical and complete in every district, but the predominance of the two types occurred, as I have stated, in many regions of country, and the typhoid element seems to have permanently impressed most of the diseases incident to the climate. And this important modification of disease demanded at once a radical change of treatment. The preparations of bark and mercury, together with bloodletting, were no longer efficient; but instead of these, the employment of stimulants and nutrients became the leading agents. Quinine, so efficacious in periodical fevers, was not only inefficient in the new form of disease, but was often found positively pernicious; mercury was seldom required, and frequently wholly inadmissible. This great change of treatment was not due to an improved pathology, but it arose from the introduction of a new form of disease, and experience soon indicated the necessary changes of treatment.

But still another modification in the type of disease has occurred here and elsewhere. Practitioners have observed, for some years past, a *nervous* type, with often a decided tendency to prostration, so much so, indeed, that depletion must be resorted to cautiously, or entirely interdicted.

Now it is evident, from the concurrent statements of writers in Europe and America, that these changes are general and common to both countries; and that a corresponding modification of treatment has occurred, co-extensive with the changes in the type of disease. Typhoid fever has of late years spread over England, and has been fully recognized by the practitioners generally. In 1845, the writer of these remarks observed cases of typhoid fever in the London Fever Hospital; but they were limited in number, and, perhaps, not well defined, for Dr. Tweedie remarked that the disease had not been recognized, and that they made no distinction between the typhus and typhoid forms. Soon, however, typhoid fever multiplied, and its existence was fully recognized by Dr. Jenner and other observers.

I may also mention here, as evidence of the change which the *type* of fever undergoes, that Dr. Tweedie's report for the year 1845, shows the low form of disease by the large quantity of stimulants demanded. He states that, in the epidemic of 1843, when 1,100 patients were admitted, the quantity of wine administered was about 1,800 ounces, and 60 of brandy; while the next year, although not half the number were admitted, they consumed 14,000 ounces of wine, and 760 of brandy, besides gin and porter! No fact could be more striking and conclusive than this.

It ceases, therefore, to be a matter of surprise or doubt that these zymotic causes, with others probably unknown, should modify the *type* of disease and require treatment greatly changed in character. The choleraic and typhous poisons, to say nothing of the causes which have so extensively modified the nervous system, must be regarded as fully competent to effect these important changes.

It is contended, however, by Dr. Bennett, that *inflammation* is always essentially the same, and hence there has been no change in the *type* of disease. It is very true, indeed, that the elementary actions characteristic of inflammation must necessarily remain unchanged; that is, the adhesion of the corpuscles, distension of vessels, stagnation of blood, and, finally, the exudation of lymph, are the same in the days of Bennett that they were in those of Cullen. But this does not embrace the main question, for it is not the local changes occurring in an inflamed tissue which are supposed to have undergone changes, but it is the condition of the *general system*—of innervation, circulation, and all the vital functions. These become, from general causes, depressed; and although there may be no change in the microscopic appearances of inflammation, nevertheless the *reaction* is less intense, the tendency is to depression, and depletion is less demanded. Hence the *type* of disease may change, while the minute process of inflammation remains unaltered.

It is not contended, however, that this change of type will be observed in every example of disease; on the contrary, we still witness the old division of sthenic and asthenic inflammations. The former, however, have diminished, until, finally, the latter predominate; or what would, perhaps, be more correct, there is a general lowering of the grade of action, which requires less depletion than did the same classes of disease in former years.

At the same time, I am strongly inclined to believe that the great outcry against bleeding has driven us to the opposite extreme, and we now deplete less than the interests of our patients frequently require. With the prevailing aversion to bleeding, cases are liable to be overlooked, and depletion neglected from sheer habit. Dr. Christison clearly proves, within his own personal experience, that the synocha of Cullen has several times recurred, and each time demanding depletion. But he who would regard that form of fever as a *myth*, would not recognize its new introduction, and therefore would fail to meet its exigencies.

The question of bloodletting in inflammation has been discussed almost exclusively in relation to pneumonia; but, notwithstanding the evident good effects of depletion in certain forms of that disease, it is not the affection which most clearly illustrates the powers of depressing treatment. The reason of this is, that pneumonia is so exceedingly variable in its tendencies as to defy the most careful observer in his attempts to tabulate results. But for the purpose of clearer illustrations, let us apply the same principles to other forms of inflammation, such, for example, as encephalitis, hepatitis, peritonitis, and gastritis. Would it be contended that, in a case of inflammation of the brain, characterized by a full and strong pulse, throbbing carotids, active delirium, etc., *stimulants* and *nutrients* should be employed, for the purpose of promoting cell-action? It would, probably, be difficult to find a practitioner, since the days of Asclepiades, not excepting Dr. Bennett himself, who would not bleed in active phrenitis, cover the abdomen with leeches in abdominal inflammation, or apply cups in hepatitis. And if this be true, the same *principles* should regulate the treatment of pneumonia, varied according to the tendencies of individual cases. In an example of active pneumonia, occurring in a robust constitution, with full reaction, hot skin, and oppressed breathing, no physician would dare withhold depletion and substitute stimulation. The instincts of our nature, to say nothing of science, would forbid it, and the opinions of enlightened physicians would declare it *malpractice*.

The treatment of pneumonia, I need scarcely add, must vary with its forms and modifications. Let us assume the existence of the following varieties:—

1. Sthenic pneumonia.
2. Asthenic pneumonia.
3. Latent pneumonia.
4. Specific pneumonia (typhoid, miasmatic, etc.).
5. Diathetic pneumonia (rheumatic, scrofulous, etc.).

In these five species will be found therapeutical indications widely different; and the discriminating practitioner will perceive the necessity of bleeding in one, of giving quinine and opium in another, while still another class will demand specific treatment. It is freely admitted that in the milder forms of pneumonia but little treatment is demanded, and certainly bloodletting may often be omitted; but in the graver varieties the agents must be more active, or the patients will be destroyed by the inherent force of the disease. In the milder forms of all diseases, the *vis naturæ* may be sufficient to overcome morbid action; in others, again, the same *vis naturæ* must be protected from the destructive tendencies of *over-action;* while in another class, characterized by debility, the powers of nature must be sustained by stimulating agents. These are the guides which physicians, unbiased by speculative doctrines, always recognize, and which constitute the basis of enlightened practice.

The denunciation of bloodletting is nothing new. From the days of Chrysippus and Erasistratus to those of Bennett and Dietl, parties have often risen and flourished on a species of monomania on the subject of bleeding. In Rome, in the days of Galen, the opposition to depletion was fierce and bitter, and the *blood-funkers*,[1] as they were humorously called, so far predominated as to prevent depletion in the most urgent cases. And, finally, the predominance of Arabian over Greek medicine caused bloodletting, in any efficient form, to be abandoned. But, in the beginning of the sixteenth century, Pierre Brissot, a physician of Paris, finding most of his pleuritic patients die, ventured to revive the Greek practice of bleeding. This created, says Renouard, a great uproar in the medical world, and violent controversies ensued. And more recently, the Brunonian doctrine, although it does entirely exclude bleeding, is based measurably on the employment of stimulants to remove *debility*. In our own country the outcry of the blood-funkers has been as excruciating as the *antimonial martyrology* of Guy Patin. Originating in the profoundest depths of ignorance and presumption, it has gradually risen to a more imposing but not less false position; and while struggling to sustain a system based on the relics of the dark ages of medicine, such as Galen and Brissot had to combat, the Edinburgh defection comes opportunely to their support. Dr. Bennett may have the satisfaction of knowing that his doctrines, in the United States, are eagerly embraced by the empirics, while the regular profession repudiate them as false and mischievous. The American *blood-funkers* find great consolation in the doctrines of the Edinburgh and German medical *Illuminati.*

But let us hope the end is not yet. Theory and practice do not always accord. The celebrated blood-funker has been attacked in a tender way. Inflammation came stealthily upon him, when lo! Dr. Bennett's case *demands bloodletting!* His colleague, Professor Miller, informs us that his sthenic constitution nobly sustained depletion. Thus, the hand of Providence becomes a more potent teacher than statistical tables or microscopic revelations.

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[1] Chambers, Med.-Chir. Rev., Oct. 1858.

Art. II.—*Some Remarks on the Adynamic Type of Remittent Fever and its Treatment with Nitric Acid.* By Bedford Brown, M. D., Yanceyville, Caswell County, N. C.

Attacks of remittent fever, apparently mild in the beginning, may subsequently assume the adynamic or typhoid type at any period of their progress. Yet this type, in its most dreaded and malignant form, generally characterizes the attack of fever, from the very commencement. When developed fully and in all of its intensity, it is truly a disease of fearful import. Indeed, in point of malignancy, it is but little inferior to the worst forms of typhus—a disease to which it presents features of striking resemblance.

Features peculiar to the Adynamic Type of Remittent Fever.—The various symptoms and indications of ordinary remitting fever are so materially modified by the presence of adynamia, as to give them a character utterly different from the original. The tendency of this modification is to create a very decided depression of the vital functions.

The organic properties of the blood, as well as the vital condition of the general organization, are at a reduced standard. Consequently, as might be expected, vital action is invariably impaired in a corresponding ratio.

In the most malignant grades of this type, observed by myself, those vital attributes, termed "sensibility and irritability," are diminished to an extent that would attract the attention of the most unobserving. The slow and feeble pulse tells plainly how the imperfectly nourished cardiac tissue fails to respond vigorously to the stimulus of impure blood. Again, the fever is of an inferior and imperfectly developed grade, as is manifested by the short and irregular exacerbations, the long and prostrating remissions, in which the animal temperature is reduced far below the healthy standard. Nor are these remissions attended with general perspiration. Neither do they afford that signal relief to the patient which we witness in milder cases. The appearance of the tongue is peculiar. In other instances we view redness of this organ as of evil omen; but in this, the tongue that is *clean*, pale, dry, and harsh to the touch, is infinitely more to be dreaded. The state of the mental faculties in these cases is greatly modified and changed. The powers of memory are utterly confused, and frequently lost—particularly the recollection of time and place. The control of the mind over the voluntary operations is irregular and defective. Within a brief period after the attack, the patient is often unable to protrude the tongue. Nor is he often able to assume the upright posture, from danger of fatal syncope.

In this class of cases delirium is by no means a marked symptom, and when present approaches nearer in character to gentle monomania. To the contrary the mind seems generally incapable of acting at all. In all somnolence and stupor are present. The patient makes no complaints; he neither inquires nor wishes for anything. I do not remember that in any of these cases abdominal symptoms were very prominent. Constipation usually attended them in the beginning, and occasionally throughout the progress of the disease. Diarrhœa, though generally present in the latter stages, was not troublesome at any time. Tympanitis was not common or excessive. There was usually some abdominal tenderness on pressure. Emaciation and reduction of the tissues were strikingly rapid in all cases. The skin and muscles presented a withered appearance, as if the fluids had been drained from them. Subsultus, muscæ volitantes, and vigilance were frequently present. In many the vision was very imperfect. Sensation to morbid impression was invariably blunted. Pain after the early stage was rarely complained of. Unless relieved these cases usually terminated rapidly. In another grade of adynamic remittent fever, and one less dangerous than the preceding, the development of the peculiar symptoms was both more gradual and insidious. The progressive tendency towards this state could be observed increasing from day to day in cases that had previously pursued a mild course;—a pulse becoming daily more frequent and feeble;—a tongue exceedingly dry, and presenting a scarlet hue;—delirium frequently wild and furious; the patient often attempting to seize imaginary objects or make his escape from the bed. In this class of cases tympanitis, diarrhœa, and abdominal pain and tenderness were rarely absent. These attacks pursued a course in general features scarcely distinguishable from typhoid or enteric fever, being always protracted and tedious.

My own experience being limited in the morbid anatomy of this disease, I am compelled to draw on reports of the investigations of others in analogous cases for information in this particular.

Morbid Character of the Blood in Adynamic Remittent Fever.—The reports of all those who have investigated the subject go to confirm the opinion that there is an absolute deficiency of fibrinous or plastic material in the blood of adynamic patients. The accounts to which I have had access report the quantity of fibrin as far below the normal standard. They also report a remarkable defect in the plasticity or coagulability of the plasma; the blood, with a few exceptions, being found in a fluid and uncoagulated condition after death. In these exceptions there were a few small coagula detected, which were of a soft and semi-fluid consistence, without possessing any of the properties of firmness or cohesiveness belonging to healthy fibrinous concretion. These points are of great importance, both for the establishment of a correct knowledge of the pathology of fever, and of sound principles for our guidance in its treatment. Indeed, when we consider that it is from the blood that the human fabric is built up—formed and sustained in all of its mysterious intricacies, we can well comprehend and appreciate the close and inseparable relationship existing between them. The merest variation or change in the one, must materially influence the condition of the other. Whilst all the constituents of the blood are important to organic and animal existence, a certain portion are essentially necessary. In the blood plasma the albuminous properties usually predominate in quantity; but those of a fibrinous character probably play the most important part in the construction of the organism. From fibrin is constructed the framework of the economy—all other properties entering the organization answering a subservient purpose. Could, then, the amount of mischief be calculated that would result from a rapid withdrawal of a substance that enters so largely into the composition of the body?

While we have no positive knowledge to guide us, we have a right to presume that the albuminous properties suffer equally with the fibrinous in adynamic conditions. No cause can be assigned for these changes in the plasma, other than the deleterious action of the poison of miasma or contagion. The blood assumes a condition that would almost rank with inorganic substances, and is, therefore, entirely unsuited to supply material to sustain the organization.

Morbid Anatomy of Adynamic Remittent Fever.—While after certain acute attacks of remittent fever positive evidences of congestion or inflammatory action are often detected in the principal organs, in the malignant or adynamic forms of the disease the most uniform and constant organic change discovered is softening of the tissues. Reports of researches by all authors made on this subject go to establish and confirm this fact. Another important point in relation to the subject of softening of the structures in these cases, is the entire absence of any evidences of inflammatory lesions found in connection with it. It appears, under these circumstances, to be a lesion resulting purely from mal-nutrition of the organism. And what is remarkable, according to reports, these organs are more liable to this degeneration, into the composition of which fibrin and albumen usually enter most freely. After fatal cases of malignant remittent fever the muscular tissue of the heart is almost uniformly found in a softened and flabby condition.

In a large majority of the post-mortem examinations made by Dr. Stewardson, of Philadelphia, this condition of the cardiac substance was detected.

In most of the fatal cases examined and reported by Drs. Anderson and Frick, of Baltimore, the tissue of the heart was *softened, pale, and flabby.*

Maillot, in his reports of post-mortem examinations of the victims of this form of disease, refers in positive and emphatic terms to the "*remarkably pale and softened* state of the heart." The brain has also been freqently found in a softened condition. In reference again to Dr. Stewardson's reports, the condition of the liver was observed softened and changed in colour, so constantly as to induce him to consider it the "peculiar lesion" of the disease. According, also, to the observation of Dr. Swett, of

New York, the consistence of this organ was found softer than natural in nearly every case.

Again, the reports of Drs. Anderson and Frick on this point are in positive confirmation of the same fact. During the progress of this disease the structures composing the alimentary canal are equally subject to the same lesion. The spleen as often partakes of a similar condition. One among the commonest occurrences in the pathology of this form of fever, is wasting and softening of the entire system of voluntary muscles. A pathological change which is found so often pervading the various tissues, certainly cannot depend on causes of a local character. Its very nature seems to be antagonistic to inflammatory action. It is a condition by no means confined to this particular malady; but appears to be equally common in all kinds of malignant fever. Yet so far as my knowledge extends, under whatever circumstances detected, it is always found in intimate association with a circulating blood, which has lost capacity for organization. It appears from well-attested facts to be a condition by no means incompatible with complete recovery, and a return of the tissues affected with it to their original integrity. When we take into consideration the peculiar state of the blood, with which this particular lesion is so uniformly found in connection, the conclusion irresistibly forces itself upon our minds that they stand in the relationship of cause and effect. In fact there is every reason for the belief that this condition is one of true molecular disorganization, resulting from a deficient supply of plastic material for the proper renovation of tissue.

Relationship of this Lesion to particular Symptoms.—When the structures of the various vital organs have undergone that molecular change denominated softening, either partial or entire, the functions peculiar to such organs are modified in a degree proportionate to the extent of organic alteration. That this should be the case is not at all surprising. It is more than probable that there can be no functional deviation from health under any circumstance, without the previous occurrence of some organic change to account for it. We might, then, very rationally conclude that when, in an ordinary case of remittent fever, the organization undergoes this alteration the features peculiar to it would assume an entirely different aspect.

That the action of a softened and flabby heart should produce a pulse, feeble, irregular, and slow or frequent, according to the degree of lesion; that the respiration should become painfully difficult and embarrassed on the least muscular exertion; that the patient should be threatened with syncope when assuming the upright posture from an inability of the heart to sustain a perpendicular column of blood, or that there should be impairment and even complete obliteration of the mental faculties, as is evinced by delirium, somnolence, and coma, when a proper renovation of the nervous tissue has partially or entirely ceased and molecular disorganization begins, are results which might reasonably be anticipated, and do in reality occur. Again, neither is a softened and attenuated muscle capable of healthy action, a stomach of digesting, a liver of secreting healthy bile, or a kidney urine. Neither has the blood materials fit for the formation of normal secretions.

That blood should frequently exude from vessels, the consistency of whose coats have been diminished, and create alarming hemorrhages, is an occurrence reasonably to be expected, and in fact one that does often occur.

One of the most characteristic and uniform results of this organic change is constant and excessive prostration of the mental, organic, and animal functions. The mind is frequently incapable of originating a thought or recollecting a recent event. Nor can it will or direct the movement of a limb. The vital operations of respiration, circulation, secretion, and assimilation are sluggish and imperfectly performed.

Prognosis.—Cases of remittent fever characterized by adynamia from the very commencement are always of extreme danger. When this type supervenes at a later period of the disease, the condition, though less dangerous, is still of grave import. In the most malignant cases that have come under my observation, delirium was not always present, and when so, was not constant or regular. The character of the pulse, as a prognostic criterion, could not be relied on alone. While in many of the most alarming cases the pulse was very frequent, in others, probably of a more malignant grade, it was *very feeble and slow.* Many cases recovered in which the pulse reached at some period of the attack one hundred and forty. The volume of the pulse afforded more valuable information generally than the frequency of it. In some cases, just at the approach of convalescence, the pulse became irregular and intermitting. Frequency of pulse, when developed very early, was a serious indication. A very variable pulse was an unfavourable sign. When the pulse diminished in frequency, and expanded in volume in a decided manner during the remission, the disease pursued a more moderate course. A tongue that was constantly *pale, dry, and clean* appeared in connection with some of the most malignant cases I have ever witnessed. A red hue combined with dryness was a less unfavourable indication, and when moisture was present the case usually terminated in health. Among the earliest indications of this termination was a slight return of moisture and softness to the tongue. Constipation was frequent in the worst cases, while diarrhœa, to some extent, was present in the latter stages of the milder cases. I do not remember that this symptom was a troublesome one in but a few cases. In the milder grade of adynamia, tympanitis was more common than in those of a more rapid and fatal character. Imperfect and irregular febrile reaction was a condition always to be dreaded. Also material and prolonged reduction of temperature. A uniform coating over the tongue was invariably associated with the mild cases. Whereas in all those of a malignant type it was clean or but slightly coated. When the case assumed a milder form, a white coat spread gradually over the tongue.

Treatment.—Residing in a country in which the prevalence of remittent fever is an annual occurrence, ample opportunity has been afforded me of testing the efficacy of the various remedies and modes of treatment adopted and recommended by authors for the cure of that disease. While a large majority of patients, suffering from attacks of the simple and inflammatory forms of the disease, will recover under the use of such means as local and general bleeding, moderate purgation, sulph. quinia, mercury, oil of turpentine, &c., these remedies have proved utterly inefficient in the adynamia or malignant types. Indeed, it seems to me that under this system of treatment, the patient's ultimate recovery is more a question of constitutional vigour and power of resistance to disease than of remedial efficacy.

Believing that morbid anatomy and a careful observance of the vital operations, as modified in their action by certain molecular changes of a morbid character, afford us satisfactory evidence that the blood in the adynamic types has undergone a degenerative process; that its organizable properties are in a depreciated condition and are unfit for assimilation, there results consequently a decided tendency to that molecular disorganization of the solids, termed softening. To prevent the formation of this type in remittent fever, and to relieve it when established, has ever been a desideratum with the profession. Under these circumstances it is reasonable that we should seek for a plan of treatment to suit our peculiar views, and one of a more efficient character.

The tonic properties of nitric acid have long been known to the profession. Recent experiments with it by a western practitioner, in the treatment of ague and fever, have fully established the virtues of the same remedy as an antiperiodic. The tonic properties of the acid are not due simply to any influence which it may exert on the digestive organs. But that it aids in the formation of the blood, and renders it more plastic and organizable, cannot be doubted. Dr. Williams, of London, remarks on it in other diseases thus: "A chief part of the benefits arising from the use of stimulants and tonics may be fairly traced to their promoting the healthy formation of blood and an increased vigour of the circulation; but there are some agents which seem to augment the plasticity of the blood, and have no very remarkable tonic powers; I allude to nitric acid, nitro-muriatic acid, &c."

With these considerations in view, I resorted to the use of this remedy in the treatment of remittent fevers of an adynamic type. The powers of the remedy have been satisfactorily tested in at least forty cases by myself and partner, Dr. Roan. The acid was administered in simple cases, in connection with sulphate of quinia and other minor remedies. To the quinia it has certainly added efficacy. A large proportion of the cases were of a decidedly malignant type. In a sufficient number of these to determine its value the acid was administered alone, with the exception of a few remedies of minor importance. I do not remember a single fatal case, after its free and constant use. I am also impressed with the belief that it possesses much power to prevent the development of adynamia when given early. Patients, after the use of it, recovered more rapidly and completely than under the usual treatment. Under the influence of the acid it was pleasing to witness the change of form to a more simple character, by a successive clearing up and subsidence of the alarming symptoms. For the abdominal complications of certain cases I have found the internal use of nitrate of silver valuable. Symptoms of these complications I have seen again and again disappear under its influence.

The nitric acid was usually administered in doses of three drops every six hours, and gradually increased according to the intensity of the case—occasionally as high as ten drops. It was given sufficiently diluted in sweetened water to render it grateful. That the mode of treatment adopted may be better understood, I have thought proper to give a general description of a few of the worst cases treated.

Case I. This was the first instance of the kind in which I tested the remedial powers of nitric acid. The case had progressed to a considerable extent when first visited. In the beginning it was one of a simple form of remitting fever, but from neglect had assumed an alarming degree of malignancy. The subject of it was a white adult, aged 25. His pulse was excessively feeble, and ranging between eighty and ninety. The tongue very *dry, brown,* and *fissured.* His mind was forgetful, and frequently wandering. He was usually somnolent and indifferent to objects around him, and to the issue of his case. Constant subsultus and vigilance. A troublesome diarrhœa was present, with abdominal pain and tenderness. These symptoms were further aggravated by tympanitis. The skin was constantly hot and devoid of perspiration. Emaciation had advanced to a considerable extent, and vital prostration to a manifest degree. In this case nitric acid was administered in doses of three drops every six hours, and before recovery was gradually increased to ten.

The chief remedy addressed to the abdominal complications was nitrate of silver with anodynes. There is a subacute inflammatory condition of the intestinal tube, which is frequently developed during the course of some of these cases, over the progress of which the nit. argent. exerts a control equal, if not superior, to what it does in the ulceration of Peyer's glands in typhoid fever. I am constrained to believe that this efficacy is increased by the coadministration of the acid. It is possible that the supposed decomposition of the salt in the stomach is in this way prevented. In connection with other remedial measures, the patient was allowed the use of alcoholic stimulants and concentrated nutriment, as freely as his case required.

Under the combined influence of these means, the malignant features began to yield in a few days. The case assumed a mild type, and ultimately recovered.

Case II. A coloured boy, aged 12. This was a much more serious case than the first. When first visited, on the second day of his illness, he had a pulse of one hundred and forty. Tongue very red, and disposed to be dry. Much abdominal tenderness on pressure, and constipation. Febrile reaction decided. Stupefaction of the mind to so great a degree as to prevent his comprehension of the questions addressed to him. There were morning remissions without perspiration. He was treated the first three or four days with gentle purgatives, cold applications to the head, sulphate of quinia during the remissions, and to control the excessive excitement of the circulation, and obviate the tendency to cerebral complication, the veratrum viride was administered. These objects were partially accomplished so long as the remedies were continued; but the equal tendency to adynamia or malignancy was not prevented. The case began to assume this type about the fifth day. His tongue became perfectly dry, brown, and crusty. It was so hard and contracted as to resemble flesh that had been subjected to the action of heat. The pulse diminished in force, while it increased in frequency. Fever assumed the continued form—incessant delirium, with an uncontrollable desire to escape from the house, diarrhœa, tympanitis, and tenderness over the abdomen. I now determined to adopt a different mode of treatment, with the sanction of my partner, Dr. Roan.

Nitric acid was given in three drop doses every six hours. Nitrate of silver one-quarter of a grain three times daily, with a liberal amount of nutriment and alcoholic stimulants. The improvement in all the malignant symptoms of this case, at the end of ten days, was remarkable. The type had undergone an entire change to that of the mildest form of remittent. One of the earliest and most noted perceptible alterations was in the condition of the tongue. As that organ became softer, paler, and more moist, all the alarming indications vanished, as if by magic. The convalescence of this patient was steady and permanent.

Case III. This case, in general character, was almost identical with the second; the patient a boy, eight years old. Malignant symptoms supervened at a very early period of the attack. Of all these, I do not remember that there was a single one of favourable import. His delirium resembled that of a fierce lunatic; while, with hot skin and dusky complexion, the pulse was very feeble and rapid. Sordes accumulated about the mouth. His tongue became so dry and indurated as to prevent protrusion. Extreme tympanitis set in, with an annoying diarrhœa, which further increased the physical prostration; involuntary discharge of urine and feces. Under the influence of the acid and nitrate of silver, with stimulants and nourishment, this case steadily improved, assuming a very mild form, with very decided remissions and perspirations. The sulphate of quinia was then added to the other remedies with marked benefit. This little patient made a recovery that was never anticipated.

The two last cases presented one peculiarity conflicting with our preconceived notions of the relationship of lesions and symptoms. The extreme disturbance of the brain in both might have impressed us with the conviction of a dangerous amount of inflammatory action. But the treatment and its results proved to the contrary. To the efficacy of the treatment adopted in many of these cases, Dr. Roan, a gentleman of large experience and excellent judgment, can bear testimony.

Case IV. A female servant, aged 26. This case was remarkable for the malignancy of type, and also for its association with an attack of constitutional syphilis, with which the patient had suffered for some time previous to the appearance of fever. Doubtless much of this malignancy was due to the combined influence of both affections. While going about, and for some days before confinement to bed, the patient's mind was observed to be impaired and occasionally she was delirious. This delirium continued for six weeks. When she came under our observation at the commencement of the second week of her sickness, the following symptoms were present: The condition of her mental faculties amounted almost to dementia. The pulse was excessively feeble, and not exceeding ninety. Fever of a very low grade, with nocturnal exacerbations, followed by protracted remissions, during which the temperature sank to a very low degree. Her tongue was never coated nor dry at any period; but was as tremulous when an attempt was made to protrude it as that of a person suffering with mania-à-potu. This tremulousness extended to the entire muscular system. Diarrhœa was both troublesome and exhausting. Towards the latter stages emaciation became extreme. The skin became covered with large sloughs and ulcers, probably to the number of thirty. These sloughs formed more particularly about the large points. Some of them measured three inches across. When about to form, a small vesicle appeared under the cuticle, a circular slough of the skin then rapidly formed, and, after separating, left a deep and clean excavation, often extending to the muscles beneath. While these sloughs formed more readily on points exposed to pressure, they appeared indiscriminately over the surface about the large joints, back, &c. They neither granulated nor suppurated until the beginning of convalescence. In this case muscular prostration was extreme. When the patient was propped up in bed occasionally for a few moments, the heart would almost cease to act; the slightest muscular exertion greatly embarrassed her respiration.

Nitric acid, nitrate of silver, occasional opiates, and diffusible stimulants, with a sufficiency of nourishment, were administered, and continued during her entire illness—which was of more than two months' duration—with the exception of about a week, when she took iodide of potassium. The sloughs and ulcers assumed so aggravated a character about that period as to demand some antisyphilitic remedy. Under the iodide of potassium the ulcers improved perceptibly. A further increase of the adynamic symptoms compelled us to suspend this remedy, and again resort to the acid a second time. The patient is now to all appearance convalescing permanently, and, without a relapse, will recover her former health.

Art. III.—*Observations on Bronchial Respiration.* By J. Bloodgood, M. D. (Read before the Chicago Academy of Medicine, Nov. 4th, 1859, and published by request of the Society.)

When the ear or stethoscope is applied over the region of the trachea on a healthy subject, the sound produced by the air in its passage through it is distinctly heard, and is recognized as that of tracheal respiration. At a lower position on the upper part of the chest, this sound undergoes some modification in intensity and pitch, approaching more nearly to that of the vesicular respiratory murmur, into which it soon becomes completely merged.

As the aggregate area of the bronchial ramifications is very considerably greater than that of the main trunk, the air of respiration in penetrating the substance of the lungs must move with a constantly diminishing velocity; as the structure of the bronchial tubes throughout is undoubtedly that best adapted for the transmission of air with the least possible friction; as friction of the air upon the walls of the tubes and cells is the element upon which the respiratory sounds depend, and as we have seen that this friction is constantly diminishing from above downwards by reason of diminished velocity, it follows that in a state of health no sound, whether audible at the surface or not, can be generated in the middle or lower portions of the lungs so great as that of the tracheal respiration itself.

In bronchial inflammation, various sounds which have no existence in healthy respiration, are produced. The mucous rhonchus, caused by the bubbling of air through fluid in the bronchial tubes, easily recognized, varying in character according to the size of the tubes, the position, quantity, and consistency of the fluid; the sibilant rhonchus, probably produced by a circumscribed, somewhat circular constriction of a tube, giving rise to a sound more or less resembling a whistle; and the sonorous rhonchus when the sides of a tube are pressed very nearly together, either by inflammatory thickening, by external pressure, or by the presence of tenacious mucus, causing the air to assume sonorous vibrations similar to those produced by the reed of a hautboy or clarionet, and producing sounds varying from that of a snore to the coo of a pigeon, or the hum of a bee. All of these sounds may, with their many varieties, be readily distinguished when present, though the parenchyma of the lung may retain its normal condition, and sometimes without even the necessity of applying the ear to the walls of the chest.

To enter upon an elaborate description of these rhonchi and their various modifications, with the causes which produce them, is foreign to my present purpose, and would be to reiterate what is familiar to every intelligent physician. I merely wish in this connection to call attention to the fact that when the rational symptoms of bronchial disease exist to any extent, wherever located, whether deeply or superficially, the stethoscope seldom fails to discover it by the physical signs, showing that the tissue of the lung, though an imperfect conductor of sound while in a state of health, is yet a sufficiently good one to transmit to the nearest surface any unnatural sound produced within it.

Dr. John Forbes says, what I believe to be true, that

> "When the respiratory sound is perceptible over all its natural sphere and with its natural character, we may be assured that there exists no disease within the chest, which materially affects the lungs; we may be certain, at least, that the air-cells are neither obstructed by fluids poured into them, nor by compression from without. When the natural sound is altered, or no longer exists, we may be assured that disease is present."

This statement is an admission of the fact that any unnatural sound generated anywhere within the chest, either by fluid within the air-cells, or by pressure without, is recognizable at the surface, and if so, any *natural* sound produced there of equal intensity, is recognizable also.

I wish on this occasion to invite especial attention to the form of bronchial or tubular respiration, often heard, because, so far as I have been able to ascertain, it is uniformly attributed to a cause that is insufficient to explain it, one that sometimes exists without the corresponding sound, and is sometimes wanting when the sound itself is present, to wit, the conducting power of hepatized lung which renders audible a sound, usually unheard, but naturally produced by the passage of air to and fro in the bronchial ramifications.

Dr. C. J. B. Williams, in his work on the *Pathology and Diagnosis of Diseases of the Chest*, thus speaks of it :—

> "The second stage of peripneumonia is that in which the lungs present that change in the tissue, which is called by Laennec hepatization. This change consists in the gradual effusion of a semi-solid albumen in the interstitial tissues, which, pressing on and obliterating the cavities of air-cells and smaller bronchi, destroys the spongy texture of the lung, and converts it into a more or less solid mass, such a condition of the air-cells precluding any further ingress of air into them, what stethoscopic signs can we have to indicate this stage of inflammation in the living body? Here still a consideration of the physical state of the organ will teach us to expect, *à priori*, the same phenomena that experience has revealed. We have already had occasion to observe that the healthy lung, from its being composed of conductors of very different powers (air, membrane, and liquid), is a bad conductor of sound, and is therefore incapable of transmitting to its surface slight sounds, remote in the interior. But now that the tissue is rendered more uniformly dense by hepatization, it becomes a better conductor and transmits a sound (usually unheard) of the air passing to and fro in the larger bronchial ramifications. This is the *bronchial* or *tubular respiration* of Laennec and Andral, and marks the advance of the second stage of pneumonic inflammation. This sound when once heard cannot be mistaken; it resembles that produced by blowing through a crow's quill, and is frequently so loud as almost to amount to a whistle, acute and defined it forms a remarkable contrast to the dull diffused sigh of vesicular respiration. In other parts of the lung, if the disease is extensive, the breath sound is puerile."

Dr. Forbes, in the article Auscultation, *Cyclopedia of Practical Medicine*, bears similar testimony. He says :—

> "It was stated that the peculiar sound produced by the passage of the air in the bronchi, termed bronchial respiration, is not audible in the state of health, except occasionally over the track of the very largest branches; no doubt, this sound always exists in the bronchial tubes scattered throughout the lungs, but in the state of health it is rendered imperceptible, partly on account of the bad conducting powers of the spongy texture of the lungs, and partly from its intermixture with the more general sound caused by the expansion of the air-cells. When, however, the vesicular respiration is obstructed by disease, either by the obstruction or compression of the air-cells (as in inflammation of the lungs or pleura), we then hear distinctly the characteristic sound of bronchial respiration, even in the tubes of middling calibre. This variety of respiration becomes, therefore, an important sign in certain diseases."

Dr. Watson, *Practice of Physic*, says :—

"Sometimes, when this crackling ceases," alluding to the fine crepitation of the first stage of pneumonia, "the ear applied to the corresponding surface of the chest feels it heave up in inspiration, but catches no sound at all. Much more commonly, however, a new sound reaches the ear. It is not the vesicular rustle, it is not the minute crepitation, but a whiffling sound is audible like that produced by blowing through a quill. This is the sound to which the term bronchial respiration has been given, and the name expresses well the fact. I mentioned before, that in the healthy state we do not hear the air pass through the larger bronchi during inspiration and expiration. The sound, doubtless, is made, but it is obscured and hidden by the smooth rustle of the vesicular breathing which comes from the spongy lung surrounding the large divisions of the bronchi, and intervening between them and the ear; but that spongy structure is now filled up. The hepatized lung permits air to pass through the larger bronchi which are still patent, but it admits none into the vesicles or smaller tubes. It crepitates not when pressed between the thumb and finger; in fact, it is converted into a solid substance, and conducts the sound in the living body as any other solid substance would do, and, therefore, the whiffling, blowing, gusty sound of the breath, as it enters and departs from the larger bronchial tubes which still remain open, is conveyed to the ear and bronchial respiration is heard."

Again—

"The altered condition of the organ gives rise to altered sounds. Instead of the vesicular breathing of health, or the minute crepitation belonging to the first stage of inflammation, we either hear no sound at all, though we feel the chest heave up against our ear, or we hear what I described under the denomination of bronchial respiration; that is to say, a blowing sound which is conveyed to the ear from the larger and still pervious branches of the bronchi through the solid portion of lung around them, and through the solid walls of the chest. This is what the listener hears when the patient breathes, and when he speaks his voice is heard much more resonant than is natural; much more resonant than in the corresponding spot on the opposite side of the chest. We thus become acquainted with two entirely new sounds which are never heard in a healthy state of the lungs, *bronchial respiration* and *bronchial voice*, or *bronchophony*."

Still again—

"But I say sometimes we hear these morbid sounds in the case in question, and sometimes we hear no sound at all during the breathing. How is that? Why do the existence and degree of the bronchial respiration and bronchial voice vary according to the place and extent of the inflammation? These morbid sounds are most plainly marked when the number and size of the bronchial tubes involved in the hepatization are the greater. They are most distinct, therefore, when the inflammation occupies the upper part of the lung or the central parts, what are called the roots of the lungs, and when it extends thence to the surface; but when the lower portions alone are inflamed, or the inflammation is merely superficial or partial, they may not be heard at all. Again, if the inflammation should be so general and complete as to prevent the chest on the affected side from expanding you will in that case hear no bronchial respiration, for the air in the large bronchi must be stagnant; *bronchophony*, however, may remain."

Andral's views differ slightly from those attributed to him in the passage quoted from Dr. Williams. He thinks that the air, being prevented during hepatization from entering the vesicles, strikes with greater force than in healthy respiration against the sides of the tubes, and thus elicits a louder sound.

That hepatization is by far the most frequent cause of this peculiar respiratory sound is doubtless true. Dr. Walshe says: "The tubular form occurs in perfection in but one condition of lung, that of hepatization; so true is this that tubular and pneumonic breathing may be used as convertible phrases." That hepatization, by rendering the lung a better conductor, enables it to transmit to the surface sounds produced within it, otherwise inaudible, is also true; but that a sound so loud as almost to amount to a whistle, acute and defined, often of greater intensity than any other *naturally* produced within the chest, louder than the various bronchial rhonchi resulting from disease, which, when present to any extent, are always audible, whether the intervening lung be hepatized or not, can be naturally generated there by the passage of air to and fro in the bronchial ramifications, and yet be heard only through the conducting power of hepatized lung requires proof. The theory seems to be entirely inadequate to explain the fact.

All the respired air passes through the trachea where all the conditions that the respiratory organs furnish in health for the production of sound exist in their greatest perfection, and where all the sound produced, which is never so acute as almost to amount to a whistle, can be transmitted to the surface under the most favourable circumstances for being heard without the intervention of lung or any other non-conducting tissue to obstruct its passage. As the conditions necessary for the production of sound are constantly approaching more and more nearly from above downwards to those of the vesicles themselves, so must be also the sound, which can never be so loud below as that heard in the trachea, unless an effect can be greater than the cause that produced it. Every one here knows too well the objects to be accomplished by the function of respiration to believe that the mere production of sound is one of them.

The reason given by Dr. Forbes, in part, and by Dr. Watson, in full, for the absence of bronchial respiration in health, that it is obscured and hidden by the smooth rustle of the vesicular breathing is quite insufficient. No dull diffused sigh can annul a sound of higher pitch and greater intensity, that but for its presence would be heard; a swarm of bees, however large, never drowns the music of the tin pan that is put in requisition for the purpose of hiving them; and supposing the dull sound could conceal the other, what explanation can be given of the fact stated that in hepatization we sometimes hear no sound at all, though we feel the chest heave up against our ear?

How can the chest heave up against the ear unless it expands? How can it expand unless air enters it? How can air enter it without passing through the bronchial tubes! and how pass through those tubes without developing bronchial respiration if the conditions necessary to its development are simply the passage of air and the withdrawal of the confusing vesicular sound, particularly when the only other condition claimed to be necessary, the greater conducting power of hepatized lung is added thereto? All the necessary conditions are present here, but the legitimate effect is absent. If it be true that bronchial respiration is merely the natural sound of transmission, rendered audible by the absence of the vesicular murmur or the presence of hepatization, one or both, the latter, however slight, if sufficient to destroy the vesicular sound, ought to develop the other in all cases not sufficiently extensive to exclude air from the lung altogether. Dr. Watson tells us that when the inflammation is so general and complete as to prevent the chest on the affected side from expanding, we shall hear no bronchial respiration, the air in the larger bronchi being stagnant, while bronchophony may remain. How can this be if both are naturally produced within the chest and rendered audible by the same cause? The object to be accomplished in speaking is to create sound, the very essence of speech, by creating certain vibrations in the larynx which are communicated to the column of air in the bronchial tubes, transmitted to the surface and recognized there as vocal resonance in health. When rendered more audible by hepatization it is still manifestly only an exaltation of the same natural phenomenon, not an entirely new sound, as Dr. Watson asserts. The object in breathing is the decarbonization of the blood, in which process sound is useless, and forms no part more than what necessarily attends the introduction of air to the blood.

If the sound called bronchial respiration were a necessary part of that process, it should be as readily heard through the hepatized lung of the affected side as the bronchophony, which originates in the same place and is heard.

In healthy respiration the amount of air required for each act of inspiration is proportionate to the space to be filled. When the space is diminished by hepatization the quantity required will also be diminished correspondingly. If the right lung, for instance, is wholly hepatized, the left lung will receive very little, if any, more air at each inspiration than it did in health ; the power that causes the air to enter being atmospheric pressure, always uniform, and the expansive force of the respiratory muscles often diminished rather than increased during the inflammatory state. As all the air that enters the lungs is drawn in to fill the vacuum occasioned by the expansion of the vesicles, the draught must be diminished by any degree of hepatization, and cease entirely when the hepatization becomes complete. The theory of Andral, therefore, cannot be true that the air, being prevented from entering the vesicles, strikes with greater force against the sides of the tubes, for all that causes it to enter a tube at all is the demand created for it in the vesicles which the tube supplies.

The instinctive feeling of want of breath is, doubtless, ultimately connected with the presence of black blood in the pulmonary capillaries, and as in inflammation, the rapidity of the circulation is increased, so must be the frequency of the respiratory acts also; but increased frequency does not necessitate increased force. We are still left without an explanation of any respiratory sound more marked than that of puerile respiration.

A theory that fails to explain the facts sought to be accounted for, or that is in conflict with any of them, cannot be true. Some other explanation, therefore, must be sought.

We have seen that in healthy respiration both the friction and consequent sound produced by the passage of the air are constantly diminishing from the trachea downwards, and, very probably, have admired the ingenuity displayed in bringing the very delicate tissue of the lungs into free contact with the atmosphere without endangering its integrity. In disease the conditions are changed; a small bronchial tube that naturally produces little or no appreciable sound may then become a powerful instrument of it, for sound is not determined by the quantity of matter in motion, nor by the velocity alone, but by the resistance offered. The wind whistling through a keyhole is much more noisy than a far larger quantity passing through the open door. The boatswain's whistle is heard above the storm, and the mountain brook babbles boisterously on its way to the deep but silent river. When a portion of lung becomes hepatized the bronchus that supplied it no longer transmits air to the vesicles below, and can, therefore, no longer produce the sound of transmission, great or small; but as the tube itself remains open by reason of the elasticity of its walls, *the air coming from above having no room to enter except by expelling an equal quantity from it, plays around its mouth in passing downwards, and causes the air within to vibrate like the instrument known as the Pandean pipe*, and thus produces the tubular sound which will be high or low, loud or weak, according to the calibre and depth of the pervious portion of the tube, and the force of the respiratory act, which latter will be greater when the upper and middle lobes are affected than when the disease is confined to the lower portions on account of the greater velocity of the air in those parts. When the tube itself becomes filled with solid or liquid matter, or closed by external pressure, this sound will cease.

This theory explains not only the occurrence of bronchial breathing in pneumonic inflammation, but its occasional absence in that disease, by the tubes themselves becoming filled up, and also its presence sometimes in states of disease in which no hepatization exists. In the summer of 1846, I attended a patient suffering with acute bronchitis, in whom I was surprised to find, on one occasion, under the left breast, a loud, distinct, and perfectly characteristic tubular respiration, which did not exist on the previous day, and which disappeared before my visit ended. The case was one of but moderate severity, no other sign or symptom of pulmonary inflammation existed, and the speedy disappearance of this one would have forbidden such a supposition. It could only be attributed to the temporary presence of a pellet of tough mucus, plugging up a tube at some distance below its mouth. The views here presented begin to bear date from the occurrence of this case.

This theory also explains the development of bronchophony at times, without the corresponding bronchial respiration. Bronchophony being the sound naturally produced in speaking, by the propagation of the vocal vibrations downwards, and known in health as vocal resonance, must necessarily become more distinct by any improvement in the conducting power of the intermediate lung, and may be heard even though an entire side be hepatized, and its tubes be filled up with solid or liquid matter; which latter fact puts an end to bronchial respiration. But if the tubes contain air, it cannot be stagnant, as Dr. Watson asserts, but, communicating freely with the larynx, must receive and transmit the vocal vibrations as perfectly as does the column on the other side, if not more so, being stationary, after the manner of a speaking-tube or stethoscope, in which the column is not stagnant, though it does not move to and fro therein. Under these circumstances, bronchophony will acquire its greatest intensity, and, with all deference to Dr. Watson, bronchial respiration will be produced, because the air cannot pass over the mouth of the bronchus of the diseased side, on its way to the healthy lung, without causing vibrations of the air within it, which will elicit a louder sound than a much larger quantity of air passing freely through the tube would do. This may be easily illustrated with a tube three or four inches long and half an inch in diameter, by blowing forcibly through it to represent the transmission sound, then closing its lower extremity and blowing gently over its mouth, by which a loud tubular sound will be produced with very little effort. Every variety of pitch may be obtained by using a cork for a stopper, and by varying its position in the tube; but it is necessary to its production, that the tube should be perfectly closed. The first case in which my attention was seriously drawn to the value of stethoscopic signs, was one of this kind. The whole right lung was hepatized, and, consequently, immovable, with bronchial respiration most distinct and unequivocal over all its upper part. I have since seen other cases, though fortunately not many, with the same character and the same sign.

Having taken exceptions to Dr. Watson's statement that, "when the entire lung is hepatized, you will have no bronchial respiration, for the air in the larger bronchi must be stagnant," I will quote, in support of my position, from a case recorded in *Andral's Medical Clinic*—"Diseases of the Chest"—than which no higher authority can be found:—

> "CASE II. Post-mortem. Red hepatization of the three lobes of the right lung." "This is the first instance we meet of hepatization of the entire of a lung. When the patient entered La Charité, the signs furnished by auscultation and percussion announced the existence of this hepatization, not yet complete, in the middle and lower lobes; the upper lobe was, as yet, but engorged. The following days, it became rapidly hepatized; but, in this lobe, the hepatization was announced by the *bronchial respiration*, whilst in the other lobes—whose alteration, however, seemed to be the same—this characteristic sound was not heard. We think it right, carefully to note these differences of signs afforded by identical lesions,

in order that we may be accustomed to recognize these lesions whatever may be the shades announcing them."

This case demonstrates, what any number of negative facts cannot disprove, that the transmission theory is not only unnecessary, but wholly inadequate to explain the existence of bronchial respiration, for it occurs here under circumstances which would render its occurrence impossible, if the theory were true, and which, Dr. Watson says—more in deference to theory than to fact—do render it impossible. The lung is solid and immovable, no air is transmitted through its tubes, and no sound of transmission can by possibility be produced, yet the bronchial respiration is distinctly heard, and must, therefore, be due to a different course.

The phenomena of cavernous respiration and pectoriloquy illustrate this subject. Tubercle is deposited in the capillary structure of the lungs, and does not usually obstruct the bronchial branches, except by external pressure. When it softens and is discharged, an ulcerated cavity remains, the walls of which become sufficiently indurated by the deposition of lymph to prevent collapse and render them impervious to air, except through the opening into the adjoining bronchus, through which the tuberculous matter has been discharged. Here the conditions are essentially the same as in the former case. The air does not circulate through the cavern, but vibrates within it, and develops cavernous respiration and also pectoriloquy —more or less perfect, according to the form and size of the cavity—by *consonating* with the vocal vibrations in the larynx. A small tubercular cavity, with a wide mouth, might generate only bronchial respiration (from which the cavernous differs but in degree) and bronchophony; while a dilated bronchus, with a contracted mouth, might equally well develop cavernous respiration and pectoriloquy, though such combinations may rarely occur. In hepatization of an entire lung, the main bronchus of that side becomes, in effect, a cavern, from which it differs only in form, and *generates*, by the vibratory motion communicated to the air within it by the passing air without, the true tubular respiration, which, we have seen, could have had no existence during a state of health.

I grant that, in certain cases, the natural sound of transmission may become audible through the intervention of hepatized lung—when, for example, a portion of the upper or middle lobe, lying between the tubes that supply the still healthy lower lobe and the surface, is in that state—but the sound will be no louder than the vesicular murmur that obscured it, and, in a majority of cases, will be disguised by, or lost in, the louder bronchial sound produced in the tube that formerly supplied the hepatized part. When the lower lobes are exclusively the seat of hepatization, the transmission theory furnishes no explanation whatever of the bronchial breathing. The tubes that supply them transmit no air, and, according to this theory, must be silent; while those above are still surrounded by healthy tissue, and must transmit the natural, or, at most, the puerile sound. Indeed, if this theory be true, I see not how the bronchial respiration can ever be developed, unless the lower portions remain pervious while hepatization exists above; and, as inflammation and its consequences are much more frequent in the lower than in the upper lobes, bronchial respiration should be the exception rather than the rule, as it manifestly is.

The theory herein presented is sufficient to account for its presence whenever it exists, and for its absence when it is wanting; for its greater frequency and intensity when inflammation affects the upper lobes than when confined to the lower portions; and, if true, will justify sometimes a more favourable prognosis in cases of bronchial respiration than would be warranted if hepatization were present.

ART. IV.—*On the Seat of the Vesicating Principle of Lytta Vittata.* By JOSEPH LEIDY, M. D., Prof. of Anat. in the Univ. of Penna. (Read before the Biological Department of the Academy of Natural Sciences, September 5, 1859.) With a wood-cut.

IT often occurred to me that the vesicating principle of the blistering fly, *Cantharis, Lytta,* etc., was the product of some special organ in the insect, and was not diffused through the body of the animal. In polyps, bees, wasps, mosquitos, etc., we find the irritating agencies or poisons produced by particular cells and glands, not to mention the poisons and odorous principles found in special organs of higher animals. A few days since, observing numerous individuals of Lytta vittata feeding on Amaranthus albus, I collected a number, and at a leisure moment experimented with the different parts of the animal to ascertain if the vesicating principle was confined to some special part of the insect. I did not then recollect of having read of others who had performed similar experiments with the same object, but on examination, find in Pereira, under the head of Cantharis vesicatoria, the following remarks.

"The active and odorous principles of cantharides reside principally in the sexual organs of the animals. Both Farines and Zier tell us that the soft contain more active matter than the hard parts. It appears, also, that the posterior is much more acrid than the anterior portion of the body; and Zier says the ovaries are particularly rich in this active matter."

Though I have long been familiar with the researches of Audouin on the anatomy of the Spanish fly, I remembered that he had made no mention of the source of irritating power in the insect. The anatomy of Lytta vittata is so nearly like that of the Cantharis vesicatoria as described by Audouin, that I shall say nothing about it except in the way of reference.

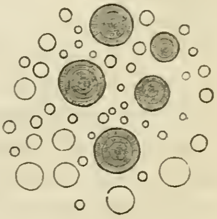
Without examining the work of Farines and Zier, I will detail the results of my experiments on the Lytta vittata, and leave it to others to compare them with the experiments of the former authors.

The Lytta vittata appears not to possess the peculiar mice-like odorous principle of the cantharis vesicatoria, at least I have not observed it in living or fresh dead specimens, nor in specimens dried and long preserved.

When the Lytta is caught, it exudes a clear yellow liquid, usually in one or two drops from a corresponding number of the knees, though smaller drops are not unfrequently seen to appear at other joints of the legs. This liquid appears to be the blood of the animal, for it is in all its physico-microscopical characters like this fluid obtained from any part of the body. If an elytrum is cut across, one or two drops of the same liquid exudes from vessels of the cut margin. The liquid forms a fibrinous coagulum, and contains colorless corpuscles, like the blood of insects ordinarily. The exudation occurring on the capture of the Lytta, I suspect to be the result of voluntary rupture of the parts, which is not extraordinary when we take into consideration the ease with which insects will sacrifice a leg. Be it as it may, the yellow liquid from any part of the body vesicates. Portions voluntarily exuded on the capture of the insect, others from the cut borders of the elytra, from cut extremities of the legs, and from the head, imbibed by separate portions of bibulous paper produced upon the inner side of my forearm a corresponding number of blisters. As the nettle among plants, and the larva of the egger moth have stinging hairs, I was led to try those of the Lytta. A quantity scraped from the elytra and other parts were mixed with cerate and applied to my forearm. They proved to be inert.

Half a dozen elytra cut into fragments and mingled with cerate produced a blister. This was the result of the contained yellow liquid or blood, for a nearly entire elytrum vesicated only at the point of contact of the cut border.

The intestinal canal with its leafy contents produced no effect. The muscles of the thorax, and the rete adiposa, or fatty matter common in insects, separately applied to the forearm produced no effect. The testicle and epididymis of the male likewise were inert; as were also two long tortuous accessory glands of the generative apparatus in the same sex. Two other accessory glands of the generative apparatus in the male, equally long and tortuous with those just indicated, are distended with an opaque white granular matter. This matter, mingled with cerate, was found to be highly vesicant. Viewed with the microscope it seems to be a consistent fat-like substance; appearing as spherules of various sizes with dark outlines, fainter concentric lines, and



others radiating, as represented in the figure. The spherules recalled to mind the appearance of the crystalline lens with its concentric layers and radiating fibres.

The ovary vesicated. This result also was obtained from the isolated eggs, crushed and mingled with cerate. A large pyriform sac attached to the generative apparatus of the female, contains a yellow sebaceous-like matter, together with a mass of hard opaque white substance. The former material appears to consist of spermatic matter, epithelial cells, and an albuminous substance; and it is inert as a vesicant. The mass of hard white substance is composed of the same fat-like spherules above described as existing in accessory glands of the male generative apparatus. I have occasionally observed it to be absent, and suspect that together with the other contents of the pyriform sac it is derived from the male. Mingled with cerate, I found it also to be a vesicant. My friend, Dr. Darrach, also applied portions of the two different substances, from the pyriform sac of the female generative apparatus, to his forearm. The fatty-like spherules alone vesicated.

Thus, as a result of the experiments above briefly detailed, the vesicating principle of Lytta vittata appears to belong to the blood, the peculiar fatty substance of certain accessory glands of the generative apparatus, and to the eggs.

ART. V.—*Remarks on the State of the Capillary Bloodvessels in Inflammation.* By JOHN H. PACKARD, M. D., of Philadelphia.

OF all the points involved in the discussion of that most complex process, inflammation, none, perhaps, has been so warmly disputed, to so little purpose, as that above mentioned. Some pathologists have claimed for the capillaries a contractile power, which they say is exerted for a time, leaving them subsequently in a state of debility; others deny this contractile power, asserting that the vessels are from the very outset enfeebled. Others again have recourse to the idea of an active dilatation, which they attribute to an alteration in the electrical state of the atoms constituting the walls of the capillaries concerned.

Microscopic examination has often been resorted to for the purpose of clearing up this matter. But observers have not arrived at altogether uniform conclusions as to what is seen when artificial stimuli are applied to the living tissues. All agree that there is a period of dilatation of the capillary walls, and that there is a stagnation of the blood-corpuscles, when inflammation is thus excited; some, however, assert that the dilatation is preceded by contraction, while others see only the former phenomenon.

So familiar to the medical reader are the accepted authorities on this subject, that the foregoing brief statements may suffice, without the recapitulation of well-known names. These writers have, with respect be it spoken, too much neglected the intimate blending of healthy and morbid states, so justly insisted upon by Mr. Paget.[1]

What, then, is the function of the capillary bloodvessels in health? From their anatomy it is a natural inference that they are mere channels for the passage of the blood; that they dilate in obedience to pressure from within, and contract in obedience to pressure from without. Thus in the web of the frog's foot they are seen only as defining the current of blood; their structure seems to be as simple as that of a cell-wall. And judging from what we are told as to their development by the coalescence of cells, they would seem, in fact, to be composed of the so-called structureless, basement, or limitary membrane.

Mr. Lister has indeed described, in the *Transactions of the Royal Society of Edinburgh*,[2] non-striated muscular fibres arranged spirally around some of the smaller arteries of the frog's foot. But this circumstance does not affect the question now under consideration, any more than does the known presence of elastic fibres, and of this form of muscular fibre in the coats of the arteries generally. Nor is there any evidence that there is such a thing in the animal economy as an active dilatation. Muscles always contract, when they are used; another set of muscles is provided, to contract in their turn, when the opposite motion is to be made.

Hence, in ordinary nutrition, the only use of a contractile power in the capillaries would be in preventing undue distension of them by the blood sent from the heart; for the continuous character of the current in them is wholly unlike the peristaltic motion which would be produced, were such a contractile power to cause or to share in causing the passage of the blood.

According to the physiology of the present day, the power by which the blood is moved along in the capillary vessels resides in the tissues themselves; that is, in the structures which occupy the interspaces of the capillary networks throughout the body. Oxygen and nutritive material are wanted by these structures; hence they attract the blood-mass nearest them. Having exhausted this portion of blood so far as they are able, they, as it were, reach out for that which succeeds it, and so on; the new supply pushing that which has become more or less effete before it.

The different parts of the body are variously endowed with vascularity, obviously because they have their several *rôles* to play in the economy, and are fitted accordingly. In like manner the degrees of susceptibility to stimulation which they manifest vary greatly; some are liable to an incessant ebb and flow of blood in their alternations of rest and activity, others are almost or quite uniform in the quantity of blood they contain. To account for these fluctuations, I look upon the supposition of a vital force as absolutely necessary; and this vital force seems to me to be, in great measure at least, under the control of the nervous system. Comparative physiology shows that there is a difference in this respect between the higher and lower orders of living beings; in man the vitality of the whole animal is to a great degree centralized in the brain and spinal marrow, and especially in the former.

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[1] Lectures on Surgical Pathology, Am. ed., p. 192.

[2] Vol. xxi. p. 549.

Now when a function is performed, either with or without volition, it is the result of an increased activity of the vital force residing in the part. This increased activity may arise from a mechanical or chemical stimulus, or from some influence less readily explicable, such as an electric shock, or an alteration of temperature; or it may be to all appearance spontaneous. In every case but the last named, the principle of reflex action is of great importance in tracing out the chain of phenomena.

An increased afflux of blood invariably ensues upon an increase of the activity of any part, because this increase of activity involves waste of substance, and this again must be made good. It is, therefore, because the intervascular structures want blood, not because the capillaries are either enfeebled or actively dilated, that a part receives more blood under these circumstances.

Now, the recognizable causes of inflammation are either stimuli, primarily increasing the activity of function of the part concerned; or depressing agents, inducing the same effect secondarily. What is the precise mode in which either influence is exerted, whether directly upon the tissues, or indirectly through the nerves, is not yet known; perhaps it will always remain a mystery. But there is in every case a stage of exaltation of the life-actions of the part; and it seems to me that herein is to be found the true explanation of the distension of the capillary bloodvessels. The contraction sometimes observed upon the application of stimuli, especially of smart mechanical irritation, may, I think, be easily accounted for upon this theory, and thus an apparent discrepancy between different statements may be reconciled. Such an irritation may induce a state of local collapse, like that which affects the system at large after severe injuries; so that the paralyzed tissues cease for the moment to attract blood, and the calibre of the vessels diminishes because their contents are lessened. The subsequent reaction goes on just as the primary excitement does in other cases.

If the inflammation continues, the over-stimulated tissues are unable to dispose of the blood they have acquired, which, therefore, stagnates, blocking up the vessels; and as the general circulation goes on, the fresh blood which comes to the part must find a passage elsewhere. Hence ensues a crowding of the vessels in the neighbourhood of the focus, and hence the gradations from the point of greatest obstruction outwards to the healthy parts around.

Should this stagnation be absolute, and should it last beyond a certain length of time, the tissues will die for want of oxygen; the cutting off of their supply of nutriment may also share in causing their death. Such is probably the rationale of many cases in which an inflamed part becomes gangrenous.

But stagnation does not always ensue in inflammation, although the current of blood may be very much slackened; in chronic inflammation, without suppuration, it is probable that this latter condition is one of the chief constituent phenomena. Such a state of things might more properly be termed permanent congestion.

Whether the current be merely rendered slower, or checked altogether, it is easy to see why throbbing should take place in the arteries supplying the part affected, and why more blood should flow from an opening in the corresponding vein. A greater resistance than usual is encountered by the arterial wave, which, therefore, spends its force upon the walls confining it, and is more readily perceptible. The other circumstance alluded to affords no evidence that more blood passes through the affected part in any given time, but rather that the contrary is the case; for the same quantity of blood being forced into a less capacious receiver, will necessarily be more rapidly forced out wherever the resistance is taken away.

Any application, such as uniform pressure, which restores the blood-current to its normal unembarrassed condition, will tend to lessen inflammation; and the combination with this of an obtunding influence upon the sensitiveness of the nerves of the part, will add greatly to the remedial effect. Thus, astringents generally are employed with the former view, and also, the nitrate of silver especially, with the latter. Cold, also, and moderate warmth, accomplish both these objects. None of these remedies act upon the vessels themselves, but upon the structures occupying their interstices, according to the idea which I have maintained.

The attraction theory of the capillary circulation was first developed by Haller, about eighty years ago. It has been, as already stated, adopted by the physiologists of our time. And yet pathologists seem to have nearly lost sight of it. The late Dr. Alison is the only writer, so far as I am aware, who has made it the basis of a theory of inflammation. He uses the following language:[1]—

> "From all these facts we think ourselves justified in inferring, that inflammation consists essentially in a local increase of a vital property of attraction existing among the particles of the blood, and between them and the surrounding textures, and with which other vital properties are connected, and simultaneously excited. That the proximate cause of inflammation, although affecting the constitution of the blood, does not reside in blood only, but primarily in the agency on the blood of the solids through which it passes in the capillary vessels, appears clearly from the limitation of the disease to a certain locality in the body, from the fact of its easy reproduction, for a long time, or for life, in the vessels which have once been the seat of it, and from other facts to be mentioned as to inflammatory effusions."

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[1] Outlines of Pathology and Practice, Am. edition, 1844, p. 84.

I cannot but regard it as singular, that this view has excited so little attention; or, rather, that it has not suggested itself to others who have studied the subject. When Dr. Alison wrote, the phenomena of reflex action had not been so clearly made out as they have since been, nor had the question as to the existence of a vital force assumed its present aspect. I may, perhaps, be excused for saying that the views expressed in this paper had been fully developed in my own mind, before the passage above quoted met my eye.

We must not hope to understand *life*. All attempts to disguise our ignorance of this mystery, by the rejection of the term "vital force" and its correlatives, are in reality unphilosophical. Certain it is, that vitality is manifested by organized matter, according to laws which the creative Power has enacted, and which we ascertain by inductive reasoning. Is it more rational to assign to this vitality a vague and undetermined haunting of the living tissue, or to regard it as the attribute of the organic cell? But if each cell has its life, with all the constituent phenomena of that process, the idea of an attraction between it and the living blood in the vessels may be as easily accepted as may that of the attraction of gravitation.

Now, assuming such an attraction, and bearing in mind the well-known influence of the nerves of a part over its nutrition, we have an explanation of the mode in which external agents may give rise to inflammation. This process, however, seems often to occur spontaneously, or at least to result from influences which we are unable to detect. When such is the case, we may still infer that it is the vital activity of the part which is increased, primarily or secondarily, with or without the agency of the nerves distributed to it; for there is no evidence of anything peculiar here, except in the initiation of the process. Thus, when a man takes cold, as the phrase is, the activity of the skin is lessened by a depressing influence from without; and a transference of that activity takes place to the mucous membrane of the bronchial tubes, or to that of the nose. Now, especially if the nerve-centres be regarded as the source of the stimulus which keeps up the vital activity of each part, the nasal or bronchial mucous membrane will in the case supposed receive an amount of stimulus quite out of proportion to its extent, and hence will be over-excited, and the rest of the process will go on as before explained.

When, as sometimes happens, inflammation seems to be set up in a part spontaneously; when no cause, either immediate or remote, can be assigned for its occurrence, we may regard it as probably due still to some agent which gives rise, primarily or secondarily, to exaltation of the vital activity of the part. And in neither of the cases first stated does it seem as if there were any greater reason for believing that the walls of the bloodvessels take any active part, than in the frog's foot, where the eye can trace the progress of things.

If in the foregoing remarks I have succeeded in clearly stating the idea which is present to my own mind, they will not render me amenable to the charge of solidism. Such a view seems to me to present, as Virchow has said with reference to his cellular pathology,[1] "the true combination of solidism and humoralism."

Art. VI.—*Case of Successful Operation for Vesico-Vaginal Fistula.* By Washington L. Atlee, M. D., of Philadelphia. (With eight woodcuts.)

For reasons which will be apparent in the remarks following the report of this case, I have thought proper to precede the details of the operation by extracts from a letter written, at my solicitation, by Dr. J. C. Weatherby, of Clarksboro', N. J., giving a lucid and truthful history of the case before it came into my hands. This history is particularly valuable, as showing: 1st, that vesico-vaginal fistula may occur in females, who have previously had numerous children without any difficulty, whose pelves are well formed and amply capacious, and whose labours are managed by skilful accoucheurs; 2d, that the injury, although coincident with parturition, may not be the effect of it, nor dependent upon any manipulation at that time; and 3d, that it really may arise from a condition not heretofore suspected of being capable of producing such a result, and that, too, prior to the commencement of labour. Dr. Weatherby writes:—

"I was called to Mrs. S. on the morning of the 2d of June, about 4 o'clock. Found her in labour. Pains moderate, os uteri dilated to the size of a half dollar, and waters discharged. A tedious case anticipated. The head was high in the pelvis. I felt no anxiety about the case. Spent an hour or two with Mr. S. down stairs. Made another examination and found the os more dilated and head lower down. Observed nothing to cause any apprehension for her safety. About 9 o'clock I found the os well dilated and the head pressing very hard on the symphysis pubis, and not disposed to come down as fast as I should have liked. Her pains were at this time very trifling, and I gave a portion of secale cornutum. I asked when she had last voided urine. She answered that she had a short time previously, and also informed me that for some two or three days she had been troubled with partial incontinence, expressed in her own way.

"The pains now assumed a more formidable character, and in fact she complained so bitterly of them, that I gave her about two grains of opium in pill. The pill had the desired effect, but pains continued forcible, head lower and os uteri entirely over it.

"About this time, when the head was entering the inferior straight, my trouble commenced. The head seemed to be fixed permanently. Pains forcible and ineffectual. This was about 10 o'clock. Resorted to the use of forceps, the sixth or seventh time in twenty-two years' practice, and this my first failure. Sent for Dr. Clark. Tried to evacuate the bladder. Dr. Clark arrived about 1 P. M.

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[1] Archiv, April, 1855.

"After I sent for him do not think the head descended a particle. Told him she had not passed urine for two or three hours. I could find none. Suggested that he should try. He did so. Found no water. I tried to use his forceps, but they pertinaciously followed the old path of my own. He tried, and again the same direction was taken and they refused to lock. At this time he passed the female blade laterally over the head, and they were made to lock.

"The head was soon delivered. The shoulders seemed now as immovably fixed as the head had been, and not until a napkin had been placed around the neck and force almost sufficient to sever the head was used, with considerable manipulation, could the child be delivered. This was about 2 P. M.

"After I delivered the placenta some time, I again introduced the catheter, thinking that should there be any urine present, it might, with the subsequent accumulation, be a source of trouble to her before I should see her the next morning, and that certainly it would then have to be drawn by the catheter, after so hard and difficult a labour. I found no water.

"3d June, I visited her and found her a great deal more comfortable than I had expected. She said she had passed water all right. I was surprised at that, for often after deliveries not half so irritating to the parts have I had to use the catheter next day. Great tumefaction of the labiæ. Ordered rags wet with water to be constantly applied. Gave medicine to move the bowels.

"*4th.* Visited her again, and found her more comfortable; tumefaction in a great measure subsided. Complained of the frequency of her stools. Gave a Dover's powder. Had passed water all right. Had pain in one leg and foot, which I ordered to be rubbed with a stimulant liniment which they had on hand and had been using on their own responsibility. She said she felt smart, to use her own expression, and had no pain or soreness, except in the leg.

"On the 5th, and for two or three days after, I watched that leg. Heard no complaint about the water till some ten days after, when I called as I was passing, and then she complained of the incontinence. This was the 14th of June. I know not how many days she had so been troubled, and supposing it might be something of the same kind she had complained of before she was confined, and that it might be a paralytic affection of the sphincter vesicæ, I ordered tincture of cantharides thirty drops three times a day. In the evening of the same day I was sent for to draw her water with the catheter. I proceeded to use the instrument, and to my astonishment and utter horror I discovered the fistula, and immediately informed her of its existence. The first time I saw Dr. Clark I told him, and he was as much astonished as myself. * * *

"I ought to have stated that such a degree of anterior obliquity of the womb I never saw before. It arose at a right angle with the line of the body just above the pubis, and to that cause I attributed the great difficulty of delivery.

"The fistula, I *suppose*, was produced by a slough caused by pressure of the child's head on the bones of the pubis.

"Now this I know, that neither blade of the forceps in my own or Dr. Clark's hands was in the region of the bladder, and had no need of being. The use of one blade as a vectis I did not attempt, nor never did in any case. I further believe that forceps blades, with the caution and non-forcible manner I introduce them, would not cut the bladder if they came in contact with it. If I ever should do it, I think I should know it at the time. I should think it would be the cause of great pain, yet in using the forceps no pain or hurt in that region was complained of. There was no hemorrhage at any time prior to delivery. * * *

"I do not believe that the fistula in the bladder of Mrs. S. occurred through any negligence or want of skill on the part of Dr. Clark or myself, but that it was one of those unfortunate accidents, which are not regarded so much a complication of labour as one of its sequelæ, and liable to happen in hands the most skilful."

In a subsequent letter Dr. Weatherby writes: "With reference to the position of the child's head, I believe the presentation at first was the third of Dewees, subsequently changed by my manipulation to the first. I must confess that to me obscurity attaches to that case all through. The head seemed to be jammed and immovable, even after it attained the last position. And so with the shoulders, as I mentioned in my first letter.

"My forceps are Baudelocque's with Hodge's improvement. They are the long forceps; have served my purpose well several times formerly; and I have used them about once in three hundred cases, with uniform satisfaction till the last."

A statement was also drawn up for me by C. F. Clark, M. D., of Woodbury, N. J., sustaining in every particular the above excellent history of the case.

Mrs. S. is the mother of nine children, the last one, above referred to, having been born dead. No difficulties occurred in any of the previous labours. She is a short, stout, well-built, and healthy woman, and has menstruated regularly since the birth of her last child.

August 1, 1859. She was brought to my office, where I made a digital examination, and ascertained the existence of a very large opening in the vesico-vaginal wall. As a menstrual period was approaching, I requested her to return home and come again to the city immediately after menstruation had ceased, and submit to the operation.

19*th*. Mrs. S. having returned to the city, I made a more careful examination of the parts, assisted by Dr. T. M. Drysdale. The patient having been placed in a proper position, and the rectum sustained by Sim's speculum, the opening was readily inspected by the eye. It was at least one inch and a quarter in diameter in all directions, making almost a perfect circle. Through the opening was seen protruding the red, rugose mucous coat of the bladder. The whole trigonum vesicæ seems to have been destroyed. The lower margin of the opening is about one inch and a half from the orifice of the urethra. The vagina, throughout its whole extent, is very much contracted, particularly above, where it forms a distinct ring, through which the healthy os tincæ can be seen. In consequence of the narrowness of the vagina, the edges of the speculum and the lateral margins of the fistula were closely in apposition.

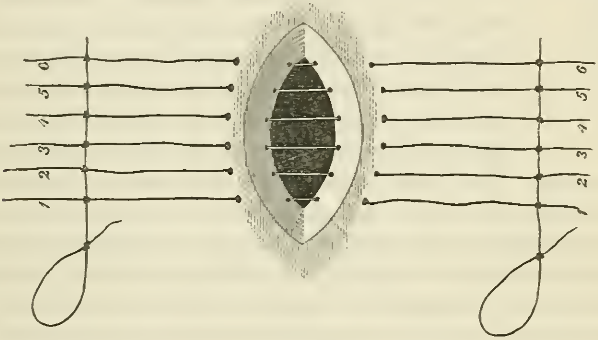
There being still some evidences of menstruation, I postponed the operation for a few days, and as the narrow vagina afforded so little space for manipulation, I attempted its dilatation by means of compressed sponge. The too rapid expansion of this sponge, in consequence of the copious supply of urine, produced great suffering, and the patient could tolerate its pressure only for a few hours. Still something was accomplished, even by its limited action.

22*d.* This day was fixed for the operation. Yesterday morning the patient took a dose of castor oil, which operated well during the day, and on going to bed she took twenty drops of elixir of opium. This morning, about one hour before the operation, she took thirty drops more. Chloroform was not employed. My assistants were Drs. T. M. Drysdale, George Spackman, Wm. B. Atkinson, and Thomas Ridgeley, of Philadelphia, and C. F. Clark, of Woodbury.

The patient was placed upon a table opposite a window admitting the bright rays of the sun, and occupied a position on her elbows and knees. The rectum was well elevated by Sim's speculum, the fistula was brought into good view, and the whole vagina was completely illuminated by the sunlight. The edge of the fistula was now transfixed by means of a spear-shaped bistoury, the point entering the vaginal mucous membrane about three-eighths of an inch below it and coming out at the vesical border. The knife was now carried carefully and slowly to the right and left until a complete circle of the above width was cut away, thus securing a raw surface all round the edge of the fistula by one sweep of the knife. A section of one-fourth of the circle was easily made by the bistoury alone; but in order to complete the cut without difficulty, the flap already made was supported by an artery forceps, so as to keep the parts in a proper state of tension. The portion removed left no doubt that the vaginal surface of the fistula was well denuded. The parts were now cleansed of blood by small soft sponges, and the fibrous structure of the internal termination of the urethra was plainly visible traversing the lower portion of the wound. As this completed the first stage of the operation, I now allowed the patient to rest upon her side until I prepared my arrangements for the next procedure.

Having made the necessary preparations, the patient was placed again in position, the parts carefully cleansed of clotted blood, and the edges of the wound well examined to see that there was a wide strip of raw surface, I proceeded with the operation. A Sim's needle, armed with annealed iron wire, No. 32, was passed into the right side of the vagina, entering about half an inch below the edge of the incision, passing through close to the mucous coat of the bladder, and emerging near to the vesical edge of the wound; then again entering at a similar point opposite in the upper lip, and finally emerging at the vaginal surface about half an inch above the upper border of the cut. So soon as the point of the needle was seen escaping above, it was caught with the blunt hook and held until the needle holder was detached below. Then seizing the point of the needle with the forceps, it, with the wire suture, was readily withdrawn. The suture was about eighteen inches long, and half of it was drawn out. To prevent the wire from cutting the mucous membrane it was drawn over the director invented by Dr. Bozeman. Knowing that with such an extensive wound I should have to use several sutures, whose numerous ends would make confusion in the future steps of the operation, I adopted a very simple and effectual means of avoiding this. The two ends of the wire were each tied with separate threads, and held out of the way. Afterwards five more sutures were introduced precisely in the same way, making six sutures in all, about one-fourth of an inch apart, and as the ends of each suture were brought out of the vagina they were secured by the thread in their regular order. This, the second stage of the operation, is represented by Fig. 1.

Fig. 1. [*Half size.*]



An inspection of this diagram will at once show that this contrivance prevented the tangling of the wires, and enabled me, at the same time, to identify each wire as it was needed. The result, also, proved that the arrangement was an admirable one. It facilitated many of our future movements, and entirely obviated the necessity of raking out each wire from its fellows. A loop was tied on one end of each thread, so as to secure us from every possible mistake.

This part of the operation was tedious and difficult. The walls of the bladder, with its turgid mucous coat, crowded through the fistula, and continually interfered with the free use of the needles. But by the aid of an assistant, who kept the protruding parts out of the way of the points of the needles with the blunt hook, I succeeded in satisfactorily locating all the sutures.

The third stage of the operation, or coaptation of the edges of the wound, was next in order, and the mode adopted, together with the plan of securing the sutures, possesses certain peculiarities, which I flatter myself are real advantages over previous methods. The two ends of suture No. 2 were drawn from the knots in the threads, and passed through Dr. Coghill's twister, a most admirable and ingenious little instrument, which was slipped over the wires down to the wound, and after the lips of the latter were accurately adjusted by the fingers, a few turns were given to it, and thus the suture was rapidly and neatly secured. The same was done with the ends of wire No. 4, and also those of No. 6, being every alternate suture. This brought the whole wound most beautifully together, and the lips in exact apposition. This instrument, Fig. 2, is the invention of Dr. Coghill, and is described by Dr. Simpson, in his *Clinical Lectures on Diseases of Women*, in *London Med. Gaz.*, Jan. 8, 1859; (see also *Med. News and Library*, Feb. 1859), as follows: It consists essentially of two extremely short and very fine tubes fixed on the end of a steel rod, which is used for finally tightening and fixing the sutures. One end of a wire having been brought through one of the small tubes of this twister, and the other end through the other, the instrument is pushed down close to the lower bar of the splint; and then both ends of the suture having been drawn quite tight, so as to make the splint compress and consolidate the parts, a turn of the twister suffices to fix them there. The figure represents the instrument of full size, in the act of twisting the wire passed through the two terminal eyes. After having secured these three wires by the twister, I omitted cutting them off in order to accomplish an object in a subsequent part of the operation. All present now inspected the fistula, and saw how completely it was closed and secured, although only every alternate suture was tied. Fig. 3 represents this stage of the operation, and also explains how we may be certain of the proper and unalterable adjustment of the wound before the application of the button.

Fig. 2.

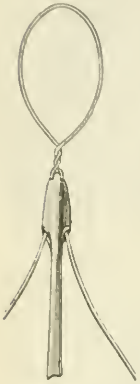
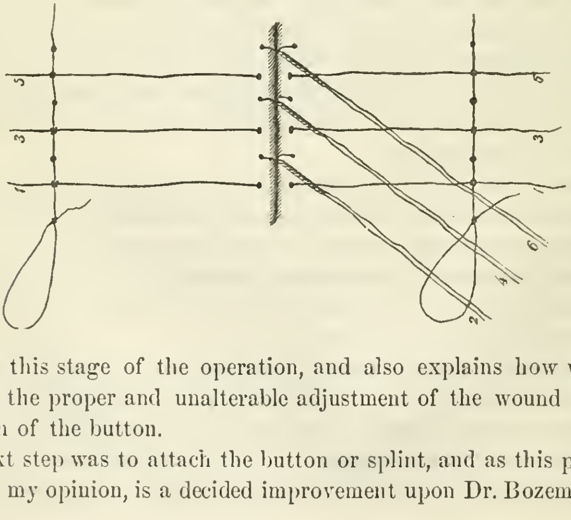
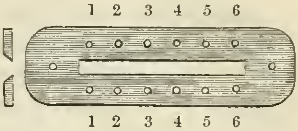


Fig. 3. [*Half size.*]



The next step was to attach the button or splint, and as this part of the process, in my opinion, is a decided improvement upon Dr. Bozeman's, both in the peculiar form of the button and its mode of attachment, I wish to call particular attention to it. Fig. 4 represents the size and shape of the button, which I constructed myself in a few moments. It is made of rolled lead of the thickness of two and a half pounds to the square foot. It has a fenestrum along its centre, proportioned to the size of the fistula, the under surface of which fenestrum, or that part of the plate in contact with the wound, is bevelled off, as seen in the end view of the figure. On each side are arranged parallel and equidistant holes.

Fig. 4.



The two ends of suture No. 1 were now drawn from the knots in the threads, and successively passed through their appropriate holes No. 1 of the button. The twisted suture No. 2 was next passed through the fenestrum. The ends of suture No. 3 through holes No. 3. The twisted suture No. 4 through the fenestrum. No. 5 through holes No. 5, and No. 6 through the fenestrum. The ends of Nos. 1, 3, and 5, in the order mentioned, were then passed through the twister, which was slipped down over the wires to the plate, and, after adjusting the latter accurately, this was firmly secured by a few turns of the instrument. The twister was removed and the wires cut off close to the twist, and the projecting end pressed down against the plate. The remaining sutures, Nos. 2, 4, and 6, emerging from the fenestrum, were afterwards perfectly secured, by passing over them perforated shot, which, having been pushed down to the button, were compressed upon the wires by a forceps, and the wires cut off close. Fig. 5 represents the several stages of this part of the operation, and Fig. 6 the appearance of the parts when completed.

Fig. 5.

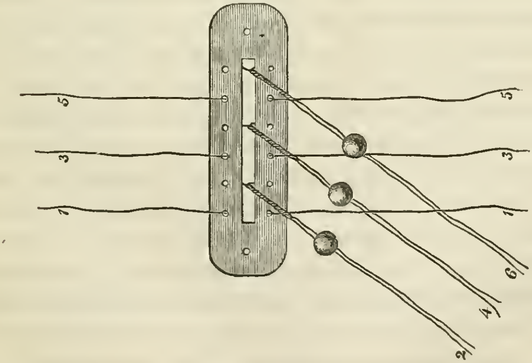
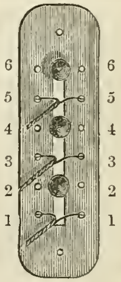


Fig. 6.



The patient, who had been on the table just one hour, was now placed in bed on her back, a urinal placed under her, and a Sim's catheter introduced, which gave exit to about half an ounce of urine. She complained of no pain during the operation, and assured me that she suffered less at my hands than she did from the irritation caused by the constant stillicidium of urine.

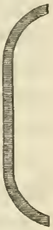
September 1, 1859. Every day since the operation the patient has taken a dose of elixir of opium morning and evening, for the purpose of keeping the bowels quiet, and enabling her to bear with less fatigue the constant confinement in the same position. The catheter was also removed twice a day and cleansed. The deposit of the triple phosphate upon the catheter was very rapid, and by the time I omitted its use its calibre was almost closed by the incrustation, notwithstanding I had cleansed it out twice a day with hot water and a piece of whalebone. The vagina was also syringed out daily with lukewarm water, the patient at the same time being on the bed-pan.

This morning, on making my visit, she said she had a great desire to pass urine, which she had not experienced since her parturition, and upon examining the catheter I was greatly alarmed to find it nearly out of the urethra, and entirely out of the bladder. There was besides no water in the urinal, which had been emptied two and a half hours before. Although previous to this time not a drop of urine had leaked away, I was apprehensive that this retention of urine might, by distending the bladder, disturb the tender adhesions and thus frustrate the object of the operation. Upon replacing the catheter about four ounces of urine came away in a strong stream. Not a drop, however, escaped through the fistula.

With the assistance of Dr. Drysdale I now proceeded to remove the button and several of the sutures. The patient was again placed upon her elbows and knees before a window admitting the sunlight, so as to furnish a good view of the parts upon elevating the rectum with the speculum. The button was in perfect apposition with the soft parts beneath, and as firm as it was when first placed there. With Sim's scissors I first cut sutures 1, 3, and 5, between the twist and the plate, and seizing the twist with the forceps I withdrew them with ease. Next, I cut off the three shot which clamped the sutures 2, 4, and 6, coming through the fenestrum, and yet, notwithstanding all the original support to the plate was now removed, the plate itself still clung to the soft parts. On attempting to lift it away with the forceps I found it required more force than I thought proper to use, and upon examining into the cause of this resistance I discovered that the fenestrum was occupied by the cicatrix, and that this had to be carefully dislodged by the blunt hook before the plate could be separated. After removing the plate, and inspecting the wound, it exhibited a most beautiful aspect. It was firmly healed from one end to the other, and wholly free from any appearance of irritation. The three sutures, 2, 4, and 6, although freed from their clamps, still retained their twist, and were allowed to remain in position as a further protection to the cicatrix. The patient was again placed in bed, and the catheter introduced.

Although the plate was straight, as in Fig. 4, when it was applied, it had assumed the regular curvature of the parts at the time of its removal. Its shape is represented by Fig. 7. This I consider gives to lead a decided advantage over every other metal, and over the wire splint of Professor Simpson, as, while it protects the wound with the greatest certainty, its yielding nature prevents it injuring any of the soft parts.

Fig. 7.



4th. Not a drop of urine has escaped since the removal of the plate. The catheter has still been removed twice a day and cleansed. To-day I placed the patient again on her knees before a good light, and, with the assistance of Dr. Drysdale, proceeded to remove the three remaining sutures. They were pretty well buried in the tissues, and somewhat difficult to nip with the scissors. They were, however, finally satisfactorily removed, leaving the wound well approximated in every point. Its whole track seemed to have become thickened, and was well consolidated. The catheter was replaced.

Before the operation the orifice of the urethra was very prominent. After the operation it was so much retracted that it was difficult to see it for the purpose of introducing the catheter. On the removal of the sutures it assumed its natural position.

The iron sutures were examined after their removal by means of a magnifying glass, and no crust of oxidation was visible upon them. They came away perfectly smooth, and left no ulcerated or irritated surface in their track.

6th. Up to the present time the bowels had not been disturbed, and for the purpose of dissolving the confined indurated feces, I ordered the rectum to be injected with one ounce of fresh ox-gall mixed with two or three ounces of warm water. This being the natural solvent of feculent matter, a very copious and soft discharge was effected in the course of two hours without straining, pain, or other difficulty.

7th. This morning I ordered the catheter to be removed three hours before the time for making my visit. During this three hours not a drop of urine escaped, and the bladder tolerated its presence without uneasiness. On introducing the catheter, four or five ounces of urine flowed out in a stream. The patient sat up to day for the first time.

8th. The same thing was repeated to-day. Before introducing the catheter I made a digital examination of the parts while the bladder was distended with urine, and all were apparently thickened and firm. The catheter was now ordered to be left out altogether, and to be used at intervals of two or three hours for drawing off the urine. The patient walked across the room to-day. Ordered another enema of fresh ox-gall.

9th. Allowed the patient to urinate without the catheter, but warned her against straining. She did not succeed in passing water, but felt satisfied that she could have accomplished it by making a satisfactory effort. The injection yesterday had acted promptly, but was followed by tenesmus, which still continued. Ordered enemas of starch and laudanum.

10*th.* Yesterday afternoon and during last night the patient urinated without the catheter at intervals of two or three hours without the least difficulty, not a drop passing in any other way than through the natural outlet.

11*th.* Placed the patient for the last time on her knees before a good light, and in the presence of Drs. Clark, Atkinson, and Drysdale, inspected the parts. All present were delighted with the condition of things; there was a perfectly solid cicatrix, and so firmly closed from one extremity to the other as to defy all ordinary efforts to rupture it.

12*th.* To-day, just three weeks after the operation, my patient walked down stairs with very little assistance, got into her carriage and rode home, a distance of several miles.

Remarks.—There are several points in the above case worthy of remark. This patient had passed through eight parturitions without trouble, and yet connected with the ninth pregnancy a terrible accident occurred! Can this be explained by any peculiar condition, not existing in her previous labours, or are we to censure the medical attendants for improper or clumsy manipulations? As a prosecution was talked of against one of the medical gentlemen, it will not be out of place to briefly examine this question.

At 4 o'clock A. M., June 2, 1859, Dr. J. C. Weatherby was called upon. After waiting several hours—the pains being weak and inefficient, and the os tincæ being well dilated—at 9 o'clock A. M. he stimulated the uterine fibre with ergot, and excited active labour. At 10 o'clock A. M. he attempted to use the forceps, but failed in applying them, using no improper force. He then sought the assistance of Dr. C. F. Clark, who, by making some slight lateral motion of the blades, applied the forceps, and without much force the head was delivered at 2 o'clock P. M., the child being dead. Now here was active labour, in a sufficiently capacious pelvis, with a favourable position of the head, continuing only four or five hours! Every experienced accoucheur will at once conclude that the injury is too grave to be explained by so slight a cause. True, the uterus was acting, as is usual under the influence of ergot, without intermission, and the child may have fallen a victim to the delay in delivery after having established this condition of uterine contraction, yet it is scarcely conceivable that the total vitality of any portion of the female organs could be destroyed by such temporary pressure, and particularly when unaided by the employment of extraneous force. The forceps were at no time applied, excepting immediately before delivery, and as they never came in contact with the part injured, of course no injury can be attributed either to their application or their use. These inferences are corroborated by daily experience. Cases are frequently met with of very strong labour, lasting many hours, where there exists a disproportion between the size of the head and the dimensions of the pelvis, and where delivery, even after ergot has been given and the forceps have been applied, is difficult and prolonged, yet no such serious consequences ensue as did in the above case. It is proper, therefore, to look for some pre-existing condition, rather than to parturition, to explain the cause of this fistula. What was that condition?

There was very great anterior obliquity of the uterus, so that its axis formed a right angle with the line of the body. This, no doubt, not only added greatly to the difficulties in the process of parturition, and in the application of the forceps, but, in my opinion, was the principal cause in the production of the fistula. The natural tendency of this position of the gravid uterus would be to elongate the vagina, and with it to drag up the bladder and curve it over the crest of the pubes. At the same time the vertex of the child's head would necessarily rest upon the crest of the pubes and be likewise firmly pressed against it by the posterior wall of the vagina and the corresponding portion of the cervix uteri being stretched tightly over the face of the child. The anterior wall of the vagina and the coats of the bladder would consequently be compressed between two hard bodies, and this compression being constant, and its force constantly increasing as pregnancy advanced, it may be readily understood how the vitality of the vesico-vaginal wall was destroyed, even before parturition commenced. Now, what are the facts as recorded by Dr. Weatherby? Two or three days before parturition set in, there was incontinence of urine. Before employing the forceps he tried to evacuate the bladder with the catheter, but found no urine. The patient had not urinated for two or three hours before Dr. Clark arrived, and yet on his arrival, both he and Dr. Weatherby introduced the catheter, and no urine was found. After the placenta was removed the catheter was again introduced, and with no better results. What became of the urine? It was not in the bladder, neither had the patient passed it in the natural way. At this very time, and for several days before, there must have been an opening between the bladder and the vagina, and it was this opening that gave egress to the urine, causing incontinence before parturition, and an empty bladder during and after it. But on June 3d and 4th the patient passed urine "all right," and no complaints were heard for three or four days after. This would seem to indicate that the vesico-vaginal walls were intact at this time. An important fact, however, is mentioned as having occurred at this period: there was great tumefaction of the labiæ. This tumefaction externally must have been dependent upon swelling within the pelvis. Now, every surgeon knows that, after the lateral operation for stone, the urine will flow through the cut for several hours; that then inflammation and consequently tumefaction will occur in the track of the wound, closing it up for the time, during which time the patient will pass urine "all right" through the urethra; and then, again, as the tumefaction subsides, that the urine will again escape through the wound. This is precisely what occurred in the above unfortunate case: the fistula, having been formed before parturition, allowed the urine to escape, until the inflammation and tumefaction, following a difficult labour, closed up the opening, and caused the urine, for a time, to be passed per urethram; then, as the tumefaction subsided, the fistula opened, and the urine again escaped through it, causing incontinence.

This, I think, is the true and legitimate explanation of the cause of the vesico-vaginal fistula in the case above reported, and if so, it ought to be a perfect vindication of the skill and carefulness of the experienced and excellent accoucheurs who managed the case.

With respect to the surgical treatment of this loathsome affliction, there are several points to which I wish to call the special attention of the profession. To Dr. Sims, unquestionably, belong the credit and lasting honour of having originated the proper management of these cases, and his mode of operating will, no doubt, be the main guide to surgeons in the future. Yet, now and then, little improvements will suggest themselves to every operator, which may greatly contribute to the facility and success of the operation in the hands of less dextrous surgeons, and thus, instead of diminishing the high reputation of the discoverer, will add another stone to his enduring monument. It is with this view alone that I have been induced to offer this case for publication. The points referred to are:—

1. *Tangling of the Long Ends of the Sutures.*—Every operator for vesico-vaginal fistula is more or less annoyed by the tangling of the numerous long wires protruding from the vagina, after having carefully inserted all his sutures. He undertakes to adjust the edges of the fistula, and to fasten each wire to its fellow, or to pass the two corresponding ends through the hole in the button, and he finds them crossing each other in every way. In order to overcome this difficulty he must first expose the fistula to view, pass in a blunt hook, catch the wire desired, rake it out and hold it until he does the same with its fellow. After doing this, he then adjusts the edges of the wound and secures the suture. This same process is repeated with every suture, which makes this part of the operation troublesome and tedious. With the simple arrangement of the thread, however, as shown in Fig. 1, all this difficulty is obviated. The corresponding ends of each suture can be at once selected without exposing the fistula and without losing time in raking out the wires, while at the same time this plan will prevent all possibility of mistakes in bringing different wires together.

2. *The Coaptation of the Edges of the Fistula and the Fastening of the Sutures before the Application of the Plate.*—By means of Dr. Bozeman's suture adjuster, the raw edges of the fistula can be readily drawn together; but by the time this has been done through a series of sutures, it will be found that the constant traction on the weak wires by the muscular walls of the fistula, will have more or less deranged the parallelism of the suture wires, and consequently the accurate coaptation of the edges of the

wound. The whole support of the wound must in this case depend solely upon the *stiffness* of a wire, which has been intentionally made as soft and pliable as art can make it, so that it may, in this respect, assimilate the character of a thread. The button now being slid over these *loose* and easily deranged wires, the fistula is hid by it from the eye of the surgeon, and the operation is completed without a positive certainty that the adjustment of the edges of the wound is perfect. This, I think, is a great defect in Dr. Bozeman's plan of operating. But the twister, Fig. 2, introduced by Prof. Simpson, is as perfect a suture adjuster as that of Dr. Bozeman, and has the additional invaluable advantage of enabling us to secure the sutures permanently at the very moment when the edges of the fistula are satisfactorily in apposition. This little instrument will, likewise, of itself accomplish this object much more rapidly, neatly, and securely than the fulcrum and forceps of Dr. Sims. The point, however, to which I desire to call special attention, is the perfect and unalterable coaptation of the raw edges of the fistula previous to the application of the button, and which is done, with the greatest certainty, by my method of securing by the twister every alternate suture.

3. *The Button or Plate.*—The button, which is intended to act both as a splint and a cover to the fistulous opening, originated with Dr. Bozeman. It has been modified by Dr. D. H. Agnew, and improved by Prof. Simpson. I have used the Bozeman button, but never to my entire satisfaction, because, while it answers as a splint in the longitudinal direction, it entirely fails in supporting the sides of the fistula—an object of the greatest importance. Neither can it be considered as a cover to the wound, offering complete protection, at all times, from injurious discharges. At first, its adjustment may be accurate and firm, but in a few days I have found it becoming loose, and by the time the sutures were to be cut, and even before, the button was tilting and wabbling—certainly not answering the purpose of a lateral splint or a cover. The button, modified by Dr. Agnew, it appears to me, must act precisely upon the same principle. Prof. Simpson's iron-wire splint, while not intended as a cover to the parts, meets the object desired by supporting the wound both laterally and longitudinally; but I should think that, without great care, there might be some danger that, instead of bringing the edges of the fistula in close apposition, it would have the tendency to keep them apart. This danger would certainly be greatly increased in certain fistulæ where a deep hold could not be taken with the sutures. Besides, its unyielding nature—being made firm by twisting several strands of wire together—would most likely cause it to irritate the more yielding soft parts bearing upon its two ends. The plate, however, constructed by myself, Fig. 4, possesses the advantages of both Dr. Bozeman's button and Prof. Simpson's splint, without having any of the above objections. By means of the fenestrum, through which I pass the previously twisted wires, the sutures can be secured by the perforated

shot, as in the Bozeman button, and by means of the parallel holes on each side, through which I pass the remaining wires, the sutures can be secured by the twister, as in the Simpson splint. In addition, there is this very great advantage over both, that before the application of my plate the edges of the fistula have already been accurately and immovably adjusted. Besides, as occurred in the case reported above, the fenestrum itself acts the part of a suture in maintaining the edges in contact.

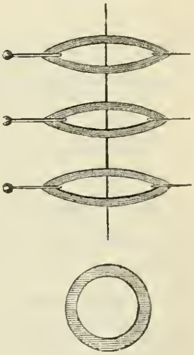
In comparing the length of the fistula, Fig. 3, which is half size, with the length of the plate, Fig. 4, full size, a disparity will be noticed. It is not necessary to have the plate as long as the original wound. The fistulous opening has been expanded by muscular retraction, and after the edges have been adjusted, its length may be diminished by affixing a shorter plate, by which means the cicatrix will be shorter, thicker, and firmer, than to leave it without a splint, as Dr. Sim's does, or to heal it under a button as long as itself.

4. *Metallic Sutures.*—While Dr. Sims asserts it as a truth, "that the great success of these operations is due entirely to the silver wire," Prof. Simpson believes that blue iron-wire is the best. Of the two metals, blue iron is certainly the cheapest and strongest, and as it is not readily oxidizable, and is highly malleable and ductile, it possesses in a high degree every property belonging to silver, while in other respects it is preferable. In the case above reported nothing could have answered the purpose better. The sutures came away easily and without tarnish, leaving no ulcerated or irritated track. With regard to the use of iron sutures, and the effect of human tissues upon them, I can speak from a very long and large experience. Besides employing the blue needle as a frequent suture in ordinary operations, I have used them over fifty times in the operation of gastrotomy. In every instance, save one, I have transfixed the wound through the walls of the abdomen by means of the blue toilet needle, and it has never been the cause of irritation to the soft parts, nor has it been oxidized by the animal tissues. The only cause of irritation was the thread employed to complete the twisted suture, and which I have recently abandoned for a more suitable material. In the case, in which the iron needle was not used, I employed the silver sutures, and this was done on the strength of the recommendation of Dr. Sims, in his Anniversary Discourse on "Silver Sutures in Surgery." The ovarian tumour removed in this instance weighed sixty-three pounds, and consequently the parietes of the abdomen were greatly relaxed, while the viscera were very much contracted, giving to the wound no under support. It was impossible, under these circumstances, to make a neat dressing with the silver wire, and the incurvation of the edges of the wound was a source of constant annoyance, even long after the patient had recovered and was walking about. I am satisfied that this suture, or any other soft wire suture, is wholly unadapted to wounds of this cha-

racter, as it cannot support the relaxed borders of the wound and maintain the edges in accurate apposition.

Since performing the above operation for vesico-vaginal fistula I have originated a new suture, which, I think, may displace all other forms of metallic sutures. It consists essentially of the blue steel toilet needle and a small gum elastic ring. The needle first transfixes the wound, and then the ring is looped over both ends. It makes an exceedingly neat dressing, and is rapidly applied, by first looping the point of the needle and then stretching the ring over the head, when its own elasticity at once adjusts it. It is perfectly clean, and, like metal, absorbs no moisture, affording no lodgment to putrefying and irritating discharges. It expands and contracts as the varying condition of the wound requires, always keeping the edges in apposition, while, at the same time, it does not ulcerate through the skin, as does the unyielding and absorbing material of the ordinary twisted suture. The ring may be made of any size by cutting off smooth sections from gum-elastic tubes of different calibres. Those I have used were procured at Thornley's, No. 311 Chestnut Street, and were made for a different purpose. I employed this suture for the first time on the 6th of October, after an operation for the removal of an ovarian tumour, and within two weeks afterwards in three additional cases of the same kind. It answered a most admirable purpose, and every gentleman who witnessed its application expressed his delight. Fig. 8 exhibits the size of the ring and the mode of its employment in the new suture. By inspecting this figure, it must be apparent that nothing would simplify the operation of vesico-vaginal fistula more, and, at the same time, secure the edges of the wound better than this suture. The lateral support of the wound would be perfect, the wound could not become incurvated, and the mucous coat of the bladder could not protrude. The needle points could be readily guarded by perforated shot clamped upon them, and removed, when desired, by wire nippers.

Fig. 8.



5. *Fresh Ox-Gall Enemata.*—The long confinement of the bowels after these operations leads to more or less accumulation of indurated feces in the rectum, while the result of such a condition of things will manifestly be an undue effort in defecation, unless the hardened mass be softened. The best solvent of the indurated contents of the bowels, according to my experience, is the bile or gall of the ox, and this injected into the rectum will cause an easy dejection, free from that straining, which might hazard the integrity of the tender cicatrix. The fresh gall-bladder can at all times be procured at the butcher's shambles, and this will contain an ample supply for our purpose.

6. *Incrustations on and in the Catheter.*—In the above case it was exceedingly troublesome to keep the catheter clean. Although I attended to it myself twice a day, washing it thoroughly with hot water and scrubbing its interior with a rod of whalebone, yet the deposit was so rapid that by the time I dispensed with the use of the catheter, it was nearly obstructed by a solid lining of phosphatic salts. The incrustation was very difficult to remove, and pieces that were scaled off were as hard as a urinary calculus. In order to arrive at a good and suitable solvent, small portions of the deposit were subjected for twenty-four hours to the action of different agents. A solution of acetate of lead (which has been recommended to be injected into the bladder as a solvent in phosphatic calculi), ammonia, glycerine, and alcohol, had no action upon it. A solution of potassa, chloride of zinc, and strong sulphuric acid softened it. Muriatic acid nearly dissolved it, and nitric acid made a perfect solution. Hence the best liquid for keeping the catheter clean, where this incrustation proved troublesome, would be water acidulated with nitric acid.

ART. VII.—*Aneurism of the Aorta pressing upon the Trachea and causing violent paroxysms of Asthma, with statistics of 22 cases of Aneurism of the Thoracic Aorta, from the records of the New York Hospital.* Reported by BARTOW DARRACH, M.D., of Quincy, Ill.

WILLIAM CATLIN, aged 44, native of Maryland, seaman. Admitted into the New York Hospital, August 13th, 1858, and placed under the charge of Dr. H. D. Bulkley. The patient says he has had a slight cold for a month past, with some mucous expectoration. Four days ago, while coming down the North River, as a hand on one of the barges, he was suddenly seized with a severe paroxysm of asthma. He never had such an attack before, and can assign no cause for it. He expressly says he had not strained himself, nor can anything indicating the formation of aneurism be discovered in his history. He knows of no tendency to phthisis, rheumatism, or gout.

Since the one mentioned above, he has had a distinct paroxysm each day. This morning he started for the Brooklyn Hospital, but had another attack on the way, and was picked up and brought here by the police.

When admitted he was suffering intense dyspnœa—face livid and anxious; surface cool and perspiring; pulse 132, full and strong; expansion of the chest, notwithstanding great effort, very little; inspiration and expiration, especially the latter, wheezing and stridulous. His chest is resonant throughout, large and well formed. On auscultation a loud sonorous rale obscures all other respiratory sounds. Heart sounds natural, and voice unaffected. Hoffmann's anodyne, chloroform, expectorants, lobelia, belladonna, and various other things were tried, in succession, without avail. His paroxysms would last from three to six hours. During their height he often became delirious.

From the 18th Aug. to Sept. 20, his paroxysms were much less frequent, and at very irregular intervals. His general condition improved, but more or less wheezing expiration and bronchitis persistently continued. During this period repeated and very careful examinations of his chest only elicited a very slightly appreciable dulness below the right clavicle, with a loud tubal sound, most distinct here, but heard more or less over the whole chest. Nothing like a bruit could ever be heard.

Early on the morning of the 20th he died suddenly, in a paroxysm.

On *post-mortem* examination, an aneurism about the size of a walnut, with an opening a little larger than a ten-cent piece, was found arising from the posterior wall of the arch of the aorta, which pressed directly upon the bifurcation of the trachea. It remained free from attachment to any of the adjacent organs. It was filled with soft coagula, and at its bottom was a plate of hard osseous deposit. Other spots of atheroma were found scattered through the aorta. No other lesions were found after an examination of the whole body.

Statistics.—On looking over the case books of the hospital, I find the notes of twenty-three cases of aneurism of the thoracic aorta, including the one just given.

The average age of 22 was 45 years, minimum 20, and maximum 70 years. Excluding four cases, in which the aneurism was very manifestly consequent upon cardiac hypertrophy, and in which the symptoms were lost in those of the disease of the heart, the average age is reduced to 34¼ years.

Fourteen were seamen; of boatman, steward of a steamer, coachman, carriage trimmer, butcher, gardener, bar-keeper, and keeper of a street stand, each one. No cause is mentioned, excepting in two cases. One had lifted a heavy weight a few weeks before, and the second felt something give way in his chest, and a warm gush, immediately after sexual connection.

Of the twenty-three cases, the aneurism occurred in the ascending aorta in three. Pain in the epigastrium was the only symptom noted in one of them, which ruptured into the pericardium. In this case a true aneurism arose from the junction of the heart with the aorta. In the other two cases, the symptoms of a false aneurism were merged in those of pleurisy in the one case, and of old cardiac disease in the other, of which the patients died.

Eight of the aneurisms arose from the arch. Three of them, the 1st, 15th, and 21st, were false, and connected with valvular disease of the heart in the 1st, and with fatty degeneration in the other two. These latter fell in the street, and were brought in moribund. The 1st had had pain in the breast and bronchitis for eight months, and died from rupture into the posterior mediastinum. In the 3d, 4th, 17th, and 23d the aneurism pressed upon the trachea, causing severe dyspnœa; in three of the instances paroxysmal. All excepting the 17th were characterized by a respiration which is described as crowing, stridulous, or wheezing. Dysphagia was a marked symptom in all but the last mentioned case. The third suffered from a violent pain in the side of the neck, and œdema of the face. His earliest symptom was dyspnœa. In this case a pulsating tumour appeared externally at the right sterno-clavicular articulation, and attained the size of a fœtal head. The 4th had been very much prostrated by a remittent fever, and a vigorous antiphlogistic treatment before admission. The aneurism was complicated with hypertrophy of the heart, and incipient phthisis. The 17th was taken suddenly, while aloft, with vertigo and dyspnœa. He had aphonia and bronchitis. All of those arising from the arch, excepting the 1st and 23d, whose history is given above, died apparently of exhaustion. The 6th died with pneumonia. The aneurism was only discovered after death. He had chalky concretions in his lungs.

In five cases the descending aorta was the seat of the lesion. Three of these were false. Two were associated with disease of the heart. All caused death by rupture, and in all there was caries of the vertebra. None produced any characteristic symptoms of their presence. Two, the 2d and 20th, complained of lumbago; the 13th of pain in the side. In the 12th the aneurism pressed upon the left bronchus, causing wheezing respiration, and feebleness of voice. The second ruptured into the spinal canal.

Six cases left the hospital. In another no *post-mortem* examination was allowed. This latter has been reported by Dr. Cameron, in the *New York Medical Press*, Sept. 1859. It, with two others, was distinguished by a peculiar loud ringing cough. Three presented a pulsating tumour externally, in two instances with a bruit; in another with downward displacement of the heart. One case was diagnosed by the bruit alone. The only other symptom was pain in the epigastrium and breast.

In the majority of cases pain seems to have been the earliest manifestation, as well as the most frequent and most constant in the course of the disease. It was the first symptom in thirteen out of seventeen cases, where the first symptom is mentioned, and existed in five-sixths of all the cases. It was sudden in its onset in three. No diagnostic value could be attached to its locality. Thus, of thirteen cases, it was in the left side of the neck, in one case; between the shoulders, and in the breast, one; nucha, one; epigastrium, right arm, side of the neck, and shoulder, and breast, each one; in the left side in three; and in the loins in two. The next symptom in frequency is cough, which occurred in ten cases, and is described as crowing, stridulous, or ringing; and laryngeal in three instances; spasmodic in one. The other symptoms are noted as follows: Bronchitis in 5; emaciation 5; bruit 4; external tumour 4; dysphagia 3; dyspnœa 6; wheezing respiration 3; palpitation 3; tracheal rales 3; œdema and lividity of the face 1; displacement of the heart, tenderness of the tumour, convulsions, aphonia, and anæmia, each 1. After the bruit and the appearance of a tumour externally, the symptoms of interference with the respiratory organs seem to be the most uniformly characteristic. The wheezing respiration especially, was uniformly associated with pressure upon the trachea, or one of the large bronchi. In one case it was the diagnostic symptom. But in the aneurisms of the descending aorta, these symptoms were wanting, excepting in one case. A bruit is mentioned in but four cases, although it was carefully looked for in others.

The termination by rupture seemed to be most uniform in the descending aorta, while those in the arch generally terminated by exhaustion, or some accompanying disease.

QUINCY, ILL., Oct. 15th, 1859.

ART. VIII.—*Case of Compound Comminuted Fracture of the Patella.*

By J. LEVERGOOD, M. D., Lancaster, Pa.

ON the nineteenth day of February, 1859, a young man, named Patrick McKeefer, aged about thirty-five years, was admitted into the Lancaster County Hospital under the following circumstances:—

About eight or ten weeks previous to his admission, while engaged in driving a stage, he was kicked by one of his horses on the left patella, producing a compound comminuted fracture of that bone. At the time of the accident, and for some time subsequently, the hemorrhage from the wound was profuse. He was brought to this city and placed in charge of a physician, but after being under treatment about four weeks, he very imprudently left his bed without the knowledge or consent of his professional attendant, and attempted, with the assistance of a crutch, to walk upon his limb. The result of his temerity, of course, was disastrous; the imperfectly united fragments were again widely separated, and the joint became stiff, swollen, and excessively painful. He was again placed under treatment, but circumstances occurred rendering his removal to the hospital necessary.

On his admission I found the knee stiff, very slightly flexed, exceedingly sensitive upon the least motion, and so much distended by an accumulation of fluid as to make it almost impossible to distinguish the number and situation of the fractured portions of the rotula. The slightest palpation of the tumefied mass afforded to the hand, very perceptibly, the sense of fluctuation, and the most prominent part of the swelling was on the anterior part of the joint. His general health was excellent.

Although almost every expedient had been exhausted, previously to his entrance into the hospital, with the view of securing the absorption of the fluid contained in the joint, and a reunion of the fractured bone, it was deemed advisable, after consultation with my colleagues, to make another attempt to preserve the patient's limb. I therefore gave him alterative doses of calomel and opium, applied tincture of iodine, and carefully bandaged the leg and laid it in a splint. This course of treatment was sedulously persevered in for about one week, but there appearing to be no visible improvement, and as the fluid was beginning to burrow under the extensor muscles of the thigh, I at once made an incision into the joint and evacuated about twelve ounces of pus.

Feb. 28th. Has not rested well; no appetite; and the accumulation of fluid is nearly as great as before the joint had been opened. Made another incision on the side opposite to the first one, and removed ten ounces of purulent matter. As the matter had invaded the interstices of the muscles of the thigh, there was considerable handling and compression necessary in order to dislodge it from the sinuses in which it was deposited. Ordered tonics, generous diet, and porter daily.

March 4th. A profuse sanious and unhealthy discharge going on from both incisions; and the synovial fluid is, and has been for some time, escaping. Notwithstanding, the patient's health remains unimpaired, his appetite is good, and his sleep is tolerably refreshing. At this stage of the case I suggested the propriety of amputating the leg, keeping in mind the great length of time since the injury was received—the exhausting effect of the profuse and unhealthy discharge then going on—the many futile efforts, thus far, made to restore the limb to usefulness—and recollecting that South, in his translation of Chelius, tells us that "compound fracture of the knee-cap *almost invariably* requires amputation, as the injury producing it is so severe that there can be little expectation of a satisfactory issue," I considered this a case requiring and justifying the use of the knife. But the patient not being willing to submit to this supposed *dernier ressort,* I continued the treatment as heretofore, and at the expiration of my term of hospital duty (first of May), I had the unfeigned pleasure of seeing my patient discharged well, with no other inconvenience than that of a slightly anchylosed knee. He walks without a staff, is engaged again in driving stage, and says his leg is "nearly as good as ever."

The above is a condensed account of this case as detailed in a paper read before the Lancaster City Medical Society, and it furnishes us with another proof of the propriety, when there is a preternatural accumulation of fluid in the knee-joint, of making an incision and evacuating it. In the August number of the *Lancet,* there are recorded three or four cases illustrating the feasibility of this procedure, and some of the cases, in many respects, are very analogous to the one above related.

ART. IX.—*Case of Epilepsy cured by the Removal of a Portion of Depressed Bone from the Skull, resulting from an Injury received ten years prior to the Operation.* By H. P. YEATES, M. D., of Baltimore. (With a wood-cut.)

ON Friday, 21st October, I was called to a young man, named George Eckhart, residing on Low St., æt. 20 years, who had been subject to epilepsy for ten years. He was now labouring under convulsions, and had been so for several hours previous; bowels torpid; without fever; ordered cathartic of prot. chlor. hyd. et ex. colocynth comp.

Saturday, 22d. No convulsions; cheerful.

Sunday, 23d. Eleven convulsions within an hour, and my attention was then called to the fact that ten years prior to this time he had received an injury on the head by a blow from a pick, such as used by labourers for excavating. Upon examination of the skull, there was found to be a considerable depression of a portion of the right parietal bone. Inasmuch as the first convulsion had followed the blow, and continued ever since, the longest interval being a month, and latterly but a few days, I determined to apply the trephine, and remove the depressed portion of bone, which I proceeded to do, assisted by Drs. E. S. Baldwin and Mahan. At this time (3 o'clock P. M.) the patient was insensible. I removed two buttons of bone, and the piece dividing the openings, being full two inches in length and three-quarters of an inch in breadth. The pulse, which before the operation was small, now became fuller, and the laborious respiration which had also existed gradually subsided; his comatose condition remained, and he had seven covulsions during the afternoon and night.

Monday, 24th. Pulse, 160; tongue, brown and dry; skin, hot and dry; coma continues; dilatation of the pupils; respiration hurried, without stertor, which existed on the previous day; bowels constipated. ℞.—Prot. chlor. hyd. x grs.

Tuesday, 25th. Pulse 160; tongue and skin as on the day before; pupils continue dilated; four convulsions since last visit; bowels not moved. Ordered enema of spts. terebinth. ℥j, ol. ricini ℥j, in a pint of warm water.

Wednesday, 26th. Pulse, 140; tongue moist; skin dry, but not so hot as before; pupils natural; no convulsions; bowels moved freely during the night, and partially conscious, with much less coma. Ordered 10 grs. chlor. pot. in water every three hours.

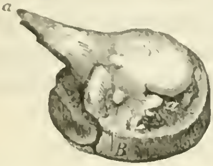
Thursday, 27th. Pulse, 100; skin and tongue moist; pupils natural; no convulsion; bowels moved; sensibility and consciousness perfectly restored, and complains of soreness of the head; wound healing.

Friday, 28th. Pulse, 100; tongue moist; pupils natural; no convulsion; bowels moved; perfectly sensible. ℞. continued.

Saturday, 29th. Pulse, 97; tongue moist and clean; no fever or convulsion, and perfectly rational. R. continued.

Sunday, 30th. Pulse, 80; no fever; all the functions natural. Suspend medicine, and dress the wound with simple cerate and lint. Diet, toast and tea; small piece of mutton-chop for dinner.

From this time the patient continued to improve, and now, four weeks since the operation, has had no convulsions, except those mentioned as occurring the second day after, and the wound in the scalp, which was of considerable size, has very nearly closed.



The most remarkable feature in this case is that on one of the buttons of bone removed is a tooth-like process (see fig.) proceeding from and perfectly attached to the piece, about one inch in length, which had no doubt been pressing on the brain, or projecting into the substance since the occurrence of the accident, and which I believe had been the cause of the convulsions.

BALT., Nov., 1859.

ART. X.—*Amputation of a Gangrenous Arm.* By B. J. D. IRWIN, M. D., Assistant Surgeon U. S. A.

February 3, 1859. A robust muscular Mexican, æt. 28, while handling his musketoon accidentally discharged it; the piece was charged with ball cartridge, and had the wooden ramrod in the barrel at the time. The contents of the gun entered the right arm on the anterior ulnar side about two inches above the wrist-joint, and thence passed obliquely upwards and outwards to a point about three inches above the elbow-joint, which it shattered as well as the lower end of the humerus. The ball passed out above the joint, while the ramrod broke and splintered into several parts, some of which made their exeunt opposite to the articulation. Many pieces of the rod were removed before I saw him. I examined the wound four hours after the receipt of the injury, and cleared it of all extraneous substances that could be detected. A long ball-forceps was passed through the course of the ball, and every particle of foreign matter removed *that could be found.* After satisfying myself of the extent of the injury, I warned the patient of its serious character, and the probability that amputation would be necessary in consequence of the dangerous nature of the lesion. He, being a poor man, depending on his manual labour for support, was anxious to retain the arm at any risk; I determined to use every means in my power to save the limb, even in a damaged condition. Cold water dressing ordered to be continually applied while the limb was placed in the proper condition for its recovery in a semi-flexed position. Morph. sulph. gr. ss given, which tranquillized the patient.

4th. Slept well; limb very much swollen, painful. Continue cold application; morph. sulph. gr. ss, at bedtime; diet to be of the mildest character.

5th. Rested well; pulse good; extensive tumefaction all over the limb; slight crepitus on the dorsal aspect of the hand; profuse secretion of fetid gas in the wound; wound carefully cleansed, and washed with dilute sol. sodæ chlor.; cataplas. carb. lig. substituted for the cold water dressing. Ol. ricini f℥iss, to be taken at bedtime.

6th. Suppuration very profuse and excessively fetid; no abatement of swelling; bowels freely moved; slept well; tongue natural; appetite very good. Continue previous treatment; and allowed light nourishing diet.

7th. No diminution of the suppurative process; extensive generation of fetid gas throughout the arm; discoloration and loss of sensation in the hand; *limb gangrenous.* Continue cataplasm of pulv. carb. lig., and frequent ablution with "Labarraque's solution." Patient rests well, and is of a resigned but cheerful disposition; appetite good; bowels regular; tongue and pulse natural.

8th. Gangrene extending upwards; discharge excessively offensive; phlyctænæ numerous over the arm; total loss of sensibility in the limb below the elbow-joint; patient is weak, and inclined to be restless; is now anxious to have the limb removed; pulse quick and small; tongue clean, bowels natural. Continue treatment of preceding day.

8 o'clock P. M. I was summoned in haste to visit this patient, who was reported to be "bleeding to death" from his wounds. I arrived in a few moments and found he had had a profuse hemorrhage from the lower wound by which he had lost about three pints of blood. Previous to my arrival a handkerchief had been tightly tied around the upper portion of the arm, which had controlled the hemorrhage already; but, as he complained much of the pain which it caused him, I loosened it and placed a tourniquet with a proper pad over the vessel. The patient was alone and asleep when the bleeding commenced, hence the amount of blood lost before he received assistance. He is very weak, cold, and complains much of the pain caused by the tourniquet; pulse 70, weak; countenance pallid. ℞.—Ammon. carb. ʒj; æther sulph. ℥iv; tinct. zingib. ℥ij; spt. vin. gal. f℥iij.—M. A dessertspoonful in a little water every half hour when not sleeping. Morph. sulph. gr. ss. This gradually restored his strength, and about one hour after the cessation of hemorrhage, the pressure of the tourniquet was gradually lessened, and a careful assistant left to take charge of the patient with proper directions how to proceed in case of a recurrence of the bleeding. I visited him during the night and found him much revived, although sleepless, in consequence of which I repeated the morphia.

9th. Slept well during the latter part of the night; feels much stronger, and is desirous to have the arm amputated. Pulse good; is cheerful and easy. At 9 A. M., I had him removed from his tent to the hospital, when, all things being in readiness, chloroform and sulphuric ether, mixed in equal measures, were cautiously administered until he was brought under their influence. Having done this, I directed an assistant to make pressure upon the axillary artery with his fingers, and I then removed the limb by an internal and external flap operation, about five inches above the gangrenous inflammation. But a few ounces of blood were lost, and the wound being united by interrupted sutures and adhesive straps, cold water dressing was applied to the stump. The anæsthesia passed quickly off, and the patient did not complain of any pain whatever. Diffusible stimulants and an anodyne were given, after which he enjoyed refreshing repose.

The removed limb was found gangrenous up to the elbow-joint, the course of the ball being in a state of sphacelus; the lower end of the humerus shattered to pieces with both condyles entirely separated from it. The elbow-joint was full of pus and undergoing rapid disorganization; the artery had ruptured opposite the joint, about half an inch above its bifurcation. Two pieces of the ramrod were found deeply imbedded in the soft tissues on the *dorsal aspect* of the arm, one three and the other six inches in length. These pieces of wood had come in contact with the bone and rebounded backwards, making a new track for themselves entirely distinct from the course of the ball. It was impossible to discover them as they lay under the deep layer of muscles, which difficulty was increased by the tumefaction.

10*th.* Patient spent a comfortable night; removed dressing and found the wound looking well—no appearance of gangrene. Continue cold application; generous diet; ol. ricini f℥iss. Morph. sulph. gr. ss at bedtime.

11*th.* Continues doing well; wound suppurating freely; no union by "first intention;" pil. quin. sulph., three times daily. Continue other treatment.

14*th.* Convalescing rapidly; wound healing by granulation; suppuration free and of healthy character; two small sloughs forming on the edge of the external flap.

16*th.* Doing well. Removed sloughs from wound; three ligatures came away; general health good.

This man continued to improve rapidly without a bad symptom. On the sixteenth day after the operation the last ligature, from the brachial artery, came away, and twenty-seven days after the amputation he was discharged in excellent health and spirits.

This case presents some interesting points in its history: First, the nature of the missiles inflicting the lesion, and the unusual manner by which the foreign body became hidden in the soft tissues. Second, the gangrenous condition of the limb at the time when amputation was resorted to, and the cessation of the gangrene with the removal of the gangrenous part, before a line of demarcation had been established.

I am well aware of the hazardous nature of operating *during the progressive stage of gangrene;* but with the rupture of the chief arterial vessel, I had to amputate or have recourse to ligation of the artery near the trunk, which would have been courting the extension of the gangrene in as dangerous a degree as by resorting to amputation at once. Pressure would not do; it could not be borne, and the short period during which it had to be resorted to it caused a very marked rapid extension of the gangrene towards the shoulder. Under these circumstances I was induced to anticipate the disease by removing the offending member at once, knowing that, in case the gangrene should reappear, I could amputate at the shoulder-joint.

FORT BUCHANAN, ARIZONA, June, 1859.

ART. XI.—*Retention of Urine from Chronic Enlargement of the Prostate Gland; Supra-pubic Puncture of the Bladder after seventy-two hours; Restoration of the Natural Passage; Death after six weeks from Inanition.* By B. F. SCHNECK, M. D., Lebanon, Pa.

August, 1858. Thomas Light, aged 58, of lymphatic temperament, had been suffering from urinary trouble for the last ten years. He never consulted a physician; each attack ending favourably after several days' acute pain. About the 22d of August, however, after exposure, he experienced severer symptoms than ever before; and having on the 24th sent for some medicines, which did him no good, he on the morning of the 25th requested my attendance. He stated that he had last made water on the evening of the 23d, thirty-six hours before; and then only a small quantity and with great agony. The bladder was greatly distended and tender; and he suffered severely from constant inclination to urinate, but could not pass a drop. I made many and patient attempts with the catheter; using, in succession, the silver, gum, and flexible metal instrument, of all sizes, without being able to pass the prostate. Every attempt to introduce it further occasioned the greatest agony. Ordered an active saline cathartic and warm baths, and tried the catheter again at noon and evening, but with the same want of success; while on each occasion, then and subsequently, the external end of the instrument was observed to pass through various irregular motions, indicating deviations of the urethra from its natural, median course. This was confirmed by a finger in the rectum, which revealed the point of the catheter quite turned over against the ramus of the left ischium. Evening.

The purgative in the morning having been rejected, and there being now much fever, he was bled to twenty ounces, and was ordered to have several comp. cath. pills and Epsom salts; warm bath to be continued.

26*th*. Has passed no water, and is not purged; but vomited repeatedly during the night. His expression is very anxious, and he sleeps a great deal (has had no anodyne), indicating evidently urea poisoning. Drs. Marshall and Rauch in consultation; no better success with catheter in afternoon and evening. Bowels moved three times since noon. Evening. Pulse 72, full and regular; very drowsy; abdominal distension enormous. In this dilemma, the man's only hope seemed to lie in puncture of the bladder; and after a final consultation, in which the necessity of the operation was unhesitatingly admitted (after another futile essay with the catheter all round), it was accordingly done, an inch and a half above the pubis. The common straight ascites trocar, with canula two and a half inches long, in the absence of any other, was used. Fully three pints of dark-coloured, most offensive urine flowed through the tube; after which a gum catheter was introduced through it, and both having been secured by tapes and adhesive plaster, the patient was put to bed tolerably comfortable.

27*th*. Morning. Has had a good night. At least two pints of urine was collected through the catheter, and probably four ounces more came through the canula, and was absorbed by cloths. Very comatose, pulse slow and feeble, and skin cool; face pale and very anxious. Adynamia, from urea poisoning. Ordered a dessertspoonful of brandy every hour, until reaction had set in. At noon and evening the patient felt better; had taken meat broths with relish; was warmer and less drowsy.

28*th*. Morning. Scarcely any urine passed during the night; abdomen much tumefied, presenting exactly the outline of the distended bladder before the operation; great pain over the whole region, and did not sleep a wink all night. Placed him on his side, when the urine again flowed. Pulse 68, calor mordax, has great thirst; complains of a painful stricture in his throat, and says he can scarcely swallow. Ordered opium gr. j, sp. nitric ether fʒj, diluted largely, to be taken every fourth hour; omitting brandy. Evening. Symptoms improved; attempted catheter for first time since operation, without success.

29*th*. Strong tendency to sinking again, with coma, &c. Resumed brandy and vol. julep.

30*th*, 31*st*. Better; tried catheter again, including Dr. Physick's bougie-tipped instrument, but unsuccessfully. It was noticed, however, that the urine that flowed from the puncture immediately after, for the space of a few minutes, was deeply tinged with blood; a most encouraging sign, as indicating a communication between the urethra and bladder. Noon and evening. General condition could not be better; may be pronounced well as soon as the urethra is again open.

September 1. Glans penis and orifice of urethra moist, as with several drops of urine. Catheter attempted again by several medical friends, but without success.

2d, 4th. Could not be better. Has an excellent appetite, and seems to have taken a new lease of life. My friends again attempted the catheter, but unavailingly.

5th. Tongue dryish, and of a bright-red colour in the middle; pulse 84.

6th. Tongue very red, and covered with a tenacious, pasty mucus, as in enteric fever; an unfavourable sign.

7th. At the first attempt this morning, without any pain, the catheter entered the bladder, and was left in sitû. Now also a new gum catheter having been introduced through the canula, this latter was withdrawn, so as to allow the tissues to contract upon its course, preparatory to the final removal also of the gum tube.

8th. Diarrhœa with tenesmus; for which laudanum enemata, and catechu and creta mixture were used. This rectal irritation may be owing to the presence of the catheter, and may require the removal of the instrument very soon. Tongue dry and red; delirious occasionally.

10th. The catheter having slipped almost entirely out of the urethra, I removed and reintroduced it, and drew off a large quantity of urine, very acid, and containing much purulent matter. Has had several evacuations resembling soapsuds. Pulse 92, tongue red and dry, face anxious. Gave volatile julep, and infusion of serpentaria and valerian. Evening. In proceeding to introduce the catheter, the orifice of the urethra was observed to be closed by a thin incrustation of blood, which had formed since the morning. As soon as this film was removed, about ℥ss of blood and pus mixed ran from the urethra. The instrument gave pain about two inches down, and again in passing the prostate. The first urine that flowed was one half blood; then it became clear, and lastly was so heavily mingled with pus as to have quite a milky colour. Decided to lay the catheter aside, and introduce it only twice a day. Orifice of puncture almost closed.

12th. Since the removal of the catheter, there have been no more tenesmus and diarrhœa. Prostration very great; extremities cold; pulse 78 and thready; bowels moved several times, evacuations consisting of fecal matter and blood. Ordered brandy, quinia, and beef essence. Evening. About the same; a little urine passed through the natural passages, by the patient's own volition.

13th. Is better; pulse 89; surface warm; tongue moist; bowels quiet. A little urine flowed through the puncture; and he several times relieved his bladder in the natural way, and freely.

14th, 16th. Pulse 74; tongue moist; evacuations perfectly natural; apparently almost convalescent.

17th. Tongue dryish; pulse 96; Huxham's tr. bark.

18th. Pulse 100; skin shrunken, cold, and dry. Vomited the bark tinct.

19th. Passed urine in a full, thick stream during the night. Pulse 84 and feeble; vol. julep.

20th, 21st. Passes his urine by the urethra at will, except a few drops, which will ooze from the puncture. Brown incrustations have appeared on his teeth; pulse varying from 90—98.

22d—25th. In statû quô. Pulse 80—86; takes brandy, valerian, eats animal and vegetable food with great relish, and seems to be gaining flesh. Bowels natural.

28th—30th. The urine again containing pus, uva ursi was given; the other remedies being continued. Pulse 86—96; tongue dryish and red.

October 2. Morning. Pulse 120; tongue red and dry; countenance bad; sinking rapidly. Evening. Pulse 140, and very feeble. It is very remarkable that eight days ago, and two weeks ago, the symptoms underwent a precisely similar change for the worse, notwithstanding the use, at intervals, of quinia and tinct. bark, which, it might be supposed, ought to have been capable of setting aside any *periodical, pernicious* movement in the case.

3d. Pulse 130—140; tongue dry and red; urine quite clear. Complained again of pain and difficulty in swallowing; says "he would, but *cannot* eat." Ordered ten grains of chlorate potash to be given in mucilage of gum Arabic every two hours, "for the purpose of increasing the saline matter in the blood, and thereby increasing its capacity for absorbing oxygen from the air; and thus re-exciting and sustaining the failing organic sensibility and capillary action" to a greater degree than could be done by quinia or all the ordinary diffusible stimulants. (*Chicago Medical Journ.*, August, 1858, p. 410.) Ordered beef broth, very highly salted.

4th. The urine passed to day, although clear at first, yielded, after standing some hours, at least an ounce of thick, glairy sediment, like white of egg, so tenacious as to be with difficulty removed from the bottom of the vessel. Can take neither medicine nor food; "it will not go down."

5th. Almost pulseless; hands and feet cold; dysphagia complete.

6th. Is barely alive, but unconscious.

7th. Died last night.

Post-mortem examination, twelve hours after death.—The first thing that attracted attention upon looking into the cavity of the pelvis, was the extremely diminutive size and contracted state of the bladder. This viscus, at the time of the puncture, contained upwards of three pints of urine, it was now so small as to hold barely half a gill of liquid. This contraction—the inevitable effect of the expulsive efforts made necessary by the enlarged prostate for so many years, and which probably existed previous to the last illness—may have been overcome by the enormous distension which threatened the patient's life, and immediately returned again as soon as the operation had relieved this distension. Great contraction and a thickening of its coats had become the natural state of the man's bladder.

From the local symptoms during life, the presumption was that an adhesion had occurred between the bladder and the walls of the abdomen, at the point of puncture; but the autopsy showed that, instead of immediate contact, there was a space of an inch and a half between the contracted viscus and the external orifice; the inter-communicating channel having become lined by an adventitious mucous membrane. Hence there seems no good reason why the canula should be suffered to remain longer than three or four days, at furthest. Indeed, it may very much be questioned whether it had not better have been entirely withdrawn at that time; and whether its presence for upwards of two weeks may not have proved a source of irritation to the bladder. In a similar case, again, I should urge its removal after the second or third day.

Owing to the condensed state of its walls, the entire mucous membrane of the bladder was thrown into many and large rugæ, and presented a dark purple colour, evidently the result of inflammatory action.

The prostate gland was very hard, and enormously enlarged. Upon slitting up the urethra back to the bladder the entire gland was exposed, and appeared of a nearly white colour; and in the extraordinary lateral hypertrophy, all traces of the middle or third lobe were entirely lost. Upon making an incision into it, its scirrhous character became apparent, feeling under the knife like gristle or leather.

The urethra anteriorly, in its membranous portion, was normal, except a discoloration—though in a less degree—similar to that of the mucous membrane of the bladder itself; and the closest examination afforded no clue to the sources of the blood which occasionally followed the attempts to introduce the catheter. But for this evidence, the occasional hemorrhage just referred to might have given rise to the suspicion of false passages, or other lesions, from the manipulations.

In the pouch of the bladder, behind the enlarged gland, some purulent matter was found; but as there was no abscess in the prostate itself, or in the contiguous structures, its existence here, or as discharged with the urine for a time, seems unaccountable; unless, indeed (although the supposition is not warranted by the symptoms during life), it may have come from the kidneys, which we were not allowed to examine. The renal source of the pus is regarded as the true one by all my medical friends who saw the case; but the examination cannot be regarded as complete, because this fact was not verified.

Bearing in mind the promising, almost convalescent condition of the patient during the last week but one of his life, when he took nourishment and stimulants so freely, with the urethra again entirely pervious, his death can only be accounted for as the result of inanition consequent on his dysphagia; a termination especially unfortunate, in view of his otherwise highly favourable condition. Besides, there was present an obscurely typhoid element, which complicated the case, and contributed in no small degree to its fatal termination.

The advocates of forced catheterism will, no doubt, be disposed to think and say, that the result would have been entirely different had that measure been adopted. It must be evident, however, that the violent laceration of so dense (and, in this case, sensitive) a structure, by the conical instrument, could not have proved otherwise than disastrous in the extreme; and the two lobes, in the natural situation of the parts, were so tightly in contact, that the thinnest silver probe could not be passed between them.

Moreover, if it be borne in mind that the continuity of the urethra was restored, it must be admitted that the operation itself was successful, although life was afterwards threatened, and ultimately destroyed, by causes which had no appreciable connection whatever with the local affection. However much, then, surgeons may congratulate themselves upon having never encountered the necessity of puncturing the human bladder, I feel assured that an examination of this specimen will convince every candid mind of the mechanical impossibility of introducing the catheter, in the present case, except by forced catheterism.

ART. XII.—*Case of Hydrophobia successfully treated with Drachm Doses of Calomel.* By JOHN E. H. LIGGET, M. D., of Middleburg, Carroll County, Md.

ON Monday, the 16th July, 1851, I was requested by George Mearing, Esq., of Bruceville, in this county, to visit his coloured girl, Maria, aged about 20 years, whom he supposed to be labouring under the above disease. On my way to Mr. M.'s he gave me the following history of the case: Some sixteen or eighteen days previously this girl, with his little son, eight or nine years of age, was in the yard teasing a young dog that had been unusually dull and morose for a day or two. Whilst holding her naked foot towards him, the dog snapped her in the great toe, and immediately sprang at the child, whom he seized by the arm. The girl ran at once into the house with the child, whose cries quickly alarmed the family. Upon removing the clothing from his arm, the indentations of the dog's teeth were distinctly visible, but the skin was unbroken; and as the girl said nothing of the dog having snapped her, Mr. M.'s fears were quieted. He at once had the dog chained in an out-house, where, in two or three days, he *died* with all the symptoms of *rabies canina* in its most virulent form. Some three days before I was called, Maria complained of pain in the great toe, extending up the limb towards the body; at the same time, from being a very lively girl, she became dull, moody, taciturn, and irritable. Upon being closely pressed by her master, she confessed that the dog had seized her by the toe, and that one of the tusks had penetrated *between the nail and the flesh*, and had drawn blood. Becoming alarmed, Mr. M. went to Littlestown, Pa., to procure a nostrum (prepared by a noted empiric), which enjoys much celebrity as a *prophylactic* in this disease. Upon procuring the article he was told by the "doctor" that, if the disease was near development, she might, whilst taking the medicine, have *one or two "fits,"* which need not alarm him, as it would indicate that the remedy was producing a "proper effect." He must persevere, and she would soon be relieved of all unpleasant symptoms. Upon returning home he found the girl worse, and she now complained of pain in the epigastrium, with slight stiffness of the muscles of the neck. He gave the medicine according to directions, and sure enough, after several hours, she had a "*fit*;" after some time another, and again another. He, however, persevered until the following morning, when the medicine had all been taken, and the spasms were increasing, frightfully, in frequency and violence. He then called on me for assistance. I found her condition to be as follows: Her mind is clear, and she is conscious of the approach of the paroxysms, of which she usually gives notice. Countenance anxious and despairing; pain in the epigastrium, radiating towards the spine. Stiffness of cervical muscles increased. Urgent thirst, with *inability to swallow fluids*, which are immediately ejected from the mouth with great force. The tongue is white. Pulse 90, and rather tense. Respiration natural, except during the paroxysms, when it is hurried and laborious. There is *increased salivary secretion*, and she occasionally expectorates, with violence, small quantities of viscid mucus, which appears to be thrown from the fauces. The convulsive paroxysms are frequent, and can at any time be excited by touching her, by a current of air, or by the sight of water or other fluids.

I told her master that the disease was, undoubtedly, hydrophobia; that it had uniformly proved fatal under all known systems of treatment, and that as I proposed to pursue a course he might deem hazardous, I should prefer, before commencing it, to have my *diagnosis* fortified by the opinion of another physician. After requesting that Dr. Swope, of Taneytown, might be sent for, I scarified and cauterized the toe, directed counter-irritants to the spinal column, and left her.

5 o'clock P.M. Dr. Samuel Swope saw the case with me. We found the paroxysms still increasing. Morbid sensibility of surface excessive. Thirst so greatly increased that she now calls constantly for water, the sight of which excites great horror and immediate spasm. In the intervals complains of pain in the head. Intellect still clear. Pulse 105, tense. Heat of surface somewhat increased. After a careful examination of the

case, Dr. Swope concurred in my diagnosis. He also assented to the plan of treatment I proposed, though without any hope of averting the fatal result he anticipated. She was now bled to the amount of ℥xxxvj, and ordered hydrarg. chlor. mit. ʒj, to be repeated every *four* hours if the symptoms remain unabated. If the spasms decline in frequency and violence the intervals to be lengthened to *six* or *eight* hours.

17*th*, 8 o'clock A. M. After the exhibition of the calomel last evening she had *one* spasm, after which the spasms ceased until two o'clock this morning, when they returned with much violence. She then took ʒj hydrarg. chlor. mit., and had an enema administered (which produced but slight effect), after which the spasms again ceased. She is now, 8 o'clock A. M., lying quiet, though in other respects her symptoms are nearly as they were yesterday evening. Ordered a drachm of calomel, to be followed by an enema of ol. terebinth. Thirst to be quenched with spoonfuls of *crushed ice*, which she swallows with difficulty, her eyes being closed to avoid the sight of it. She is to be kept perfectly quiet in a darkened room, and all causes of irritation carefully avoided.

5 o'clock P. M. The bowels have been moved moderately, dejections nearly natural. She has been free from the convulsive paroxysms until within the last hour when they returned, but with less violence. ℞—Hydrarg. chlor. mit. ʒj, to be repeated in eight hours should there be any return of spasm. Continue ice *ad libitum.*

18*th*. Could not visit the patient this morning, but learned from Mr. M. that she had rested quietly since the last dose of calomel. Directed ice to be continued, and the bowels to be moved by enema, ol. terebinth.

4 o'clock P. M. No return of convulsion since last report. Bowels have been freely moved by enemata, dejections green. Pulse 108, small. Tongue heavily coated. Some heat of surface. Complains of burning pain in epigastrium with tenderness on pressure. Thirst still considerable, but dread of fluids and inability to swallow them continue. Symptoms of approaching *ptyalism.* ℞—Epispast. to epigastrium, and continue ice.

19*th*, 3 o'clock A. M. Patient had a slight spasm yesterday evening shortly after I left, which recurred in half an hour, when her master gave her hydrarg. chlor. mit. ʒss, which quieted her till two o'clock this morning, when she complained of violent spasmodic pains in the jaw and inferior extremities, when I was sent for. Ordered tr. opii ʒj, to be repeated if necessary. Repeat enema.

5 o'clock P. M. Rested from the effects of the opiate until one o'clock this afternoon, when, complaining of some pain in the jaw, she took tr. opii ʒss, which gave her speedy relief. Blister has drawn well, and greatly relieved the burning at the stomach. Mouth getting decidedly sore. She can now begin to swallow fluids, though with difficulty. Asked for food, and took a little corn gruel. As the bowels have not been opened since last evening, give her ol. ricini ℥j, to be repeated every three or four hours

until the bowels are freely moved. Repeat anodyne, should there be any nervous commotion.

20*th*, 2 o'clock P.M. Bowels have been freely moved, dejections dark green. Mouth deeply ulcerated but dry, and ulcers rather *livid* in appearance. Has been easy since last evening, and slept pretty well during the night. Has taken corn gruel several times to-day, and can now swallow fluids without much difficulty. Pulse 106, and weak. Exhaustion considerable. Ordered quinia disulph. gr. iij, with acid. sulph. aromat. dilut. gtt. v, every three hours. Gargle the mouth frequently with infusion of white oak bark and alum sweetened with honey.

21*st*, Evening. Salivary glands are discharged freely. Ulcers have assumed a healthy appearance, and she appears to be decidedly improving. Continued treatment.

24*th*. Has continued to improve since last report. She is now lively and cheerful. Appetite good. Evacuations natural. Mouth healing.

The subsequent treatment consisted in the regular administration of nutritious diet, tonics and laxatives, with an occasional anodyne, and she was discharged cured on the 28th.

Remarks.—I related the above case, shortly after its occurrence, to a medical gentleman residing in an adjoining county, whose venerable years and high professional attainments command the respect of all who know him. He expressed the opinion that I was mistaken in my diagnosis, and gave as his reasons—*first*, that the patient was a *female*, and, *secondly*, that the case *did not terminate fatally*. He assumed from the *sex* of the patient that it was a case of that protean disease, hysteria, *simulating* hydrophobia. He frankly added that had the patient been a *male*, or had she *died*, he would have felt himself constrained to acknowledge it to have been a case of rabies. Now, as other gentlemen may be inclined to entertain similar objections, it may be proper to endeavour to dispose of them in the outset. And first: Is it true that poisons—animal, vegetable, or mineral—have their action upon the human organization so modified by *sex* that they will produce in the *female* diseases which, although apparently identical with those excited in the *male*, are, nevertheless, mere *counterfeits*, less formidable in their nature and more amenable to the resources of science? Will the virus of the rattlesnake or viper, or the exhalations from the Pontine marshes, produce in the female affections *similar* in their *phenomena*, yet *differing* in their *nature*, from those produced in the male? The records of medicine, so far as I am aware, furnish nothing to sustain such an assumption. Why, then, shall the virus of a rabid animal produce, in the female, a disease presenting all the appalling characteristics of *hydrophobia*, but which, nevertheless, we must take it for granted is *only hysteria*, because the patient *is* a female? Such a doctrine would forever unsettle our diagnosis, not only in hydrophobia, but in *all other forms of nervous disease* in females. For instance, if a woman receives a wound in a tendinous part, which, after a time, is followed by symptoms of *tetanus*, who shall say that it is not, in reality, hysteria assuming that disguise? More particularly should the patient recover. That, in the case I have reported, the disease was produced by a poison deposited in the wound when inflicted, will I think scarcely be doubted.

The *second* objection presupposes that hydrophobia is *essentially, and, in its very nature*, incurable. To argue that, because certain diseases have hitherto resisted the best directed efforts of medical science for their relief, they are, therefore, *necessarily incurable*, is, to say the least of it, illogical. Our want of success may, more rationally, be attributed to ignorance of the pathological conditions existing in this class of diseases, and consequent inability to employ proper therapeutic agencies for their removal. This is, unquestionably, the case in hydrophobia. Then can it be cause of astonishment that in the present state of our knowledge (or rather *ignorance*) of this malady we should be totally at fault in establishing proper indications for its cure?

The author of this paper had his attention drawn to this subject at an early period. The mysterious nature of the affection, the awful sufferings it entails, and the fearful fatality with which it seizes upon its hapless victims, invested it with an interest that irresistibly led him to seek for all the information he could obtain on the subject. After availing himself, as far as possible, of all the light that had been shed upon the subject by others, he was pained and humiliated to perceive how little had been accomplished in this particular field of pathological science.

All our assumed knowledge of the pathology of this disease is based on vague, unsettled hypothesis. Nothing has been rendered certain.

Man, as a rational being, when foiled in his efforts to unfold the mysteries of nature, is apt, nevertheless, to form certain *opinions* in regard to the matter he is investigating. These he connects into a *theory*, which, however crude and erroneous it may appear to others, *he* will hug to his bosom as TRUE until its fallacies are exposed. The writer of this article, availing himself of the labours of others—accepting such hypotheses as commend themselves as reasonable, and rejecting others his judgment cannot sanction—has constructed a *theory* of this disease. His poor efforts, humble though they be, and, perhaps, based upon error, cannot retard the progress of knowledge in a field thus far barren of results; whilst others, possessing superior facilities for investigation, may be stimulated to renewed exertions, from which the most beneficial results may flow.

Briefly, then, the views which have forced themselves on the writer, as being most in conformity with the known phenomena of the disease, are as follows:—

1st. The hydrophobic virus is an *irritant poison* whose action is directed, *primarily* and *directly*, on the great nervous centres, producing a perversion of their action upon the entire organization, and thus, *secondarily and indirectly*, deranging the functions of the other organs of animal life.

2d. This virus, when deposited in a wound, remains for an indefinite period of time, locked up at the seat of injury, harmless and inert, until some *exciting cause* (of the nature of which I shall not hazard even a conjecture) occasions it to be *absorbed into the circulation*, whence it is carried to the brain and spinal cord to initiate its work of suffering and death.

3d. The primary effect of the poison on the cerebro-spinal system is to depress its action. This is succeeded by great exaltation of the sensibility and irritability of the nervous system, which progressively increases until there is a total exhaustion of the vital forces, and death results from asthenia.

4th. The dread of water or other fluids results from the suffering produced by the effort to swallow them—such effort inducing violent spasm of the muscles concerned in deglutition.

5th. The increased flow of saliva appears to be a conservative effort of the vis medicatrix to *eliminate the poison from the system* through the glands engaged in its secretion.

This is a condensed statement of the views I have been led to entertain in relation to this disease. A very few observations in explanation and support of them may be permitted me. That the action of the poison is directed primarily on the brain would appear from the fact that, in the *first* stage of the disease, the functions of the circulatory, respiratory, and digestive systems, seem but slightly, if at all, impaired; whilst dulness and pain of the head, dejection of spirits, increased irritability of temper, restlessness, unusual timidity, which causes the patient to start at every sound, with a general feeling of *malaise*, undoubtedly indicate a morbid condition of the nervous centres. That the symptoms which accompany the *second* stage (and which it is unnecessary to recapitulate) are clearly referable to morbid or perverted *innervation*, is, I presume, unquestionable. The pathological appearances after death, uncertain and inconstant as they are, bear me out in this conclusion.

Many writers upon this disease suppose that the poison is locked up at the seat of injury during the period of incubation. That it produces its morbid effects upon the system through the medium of the nerves, with the sentient extremities of which it lies in contact; and they generally concur in the opinion that it is *not absorbed*, because no traces of pain, swelling, or tenderness, exist in the lymphatics or absorbent glands. Now, if the hydrophobic virus produces its effects through the nerves with which it is in contact, how shall we account for the long period of incubation between its deposition in the wound and the appearance of the disease? Would it not be more reasonable to suppose it would *act at once* upon coming in contact with the nervous filaments, especially as from recent laceration their sensibility and excitability would be morbidly increased? The absence of disease in the absorbent system will not militate against the doctrine of absorption if the hypothesis be admitted that the poison is an irritant whose effects are exerted *directly* upon the nervous centres, affecting the other animal functions, *indirectly*, through the perverted action of those centres. Neither will the *appearances* of inflammation, frequently found in various organs after death, prove fatal to the views here advanced. These appearances are, doubtless, deceptive, and are produced, not by *inflammation*, but by simple capillary *congestion*. The brain, pharynx, stomach, and air-passages, are the usual seats of these appearances; yet where, during life, are the symptoms that would indicate acute inflammatory action in these organs? The absence of delirium, hoarseness, cough, and dyspnœa, and of extreme gastric irritability, sufficiently refute the idea that these appearances are due to inflammation. It is more probable that the terrible muscular convulsions to which the patient is subject, by their disturbing effects upon the organs of respiration and circulation, favour the accumulation of blood in the capillaries, and thus give rise to these morbid appearances. But a more powerful argument in favour of the doctrine of absorption may be found in the fact—now generally conceded—that the virus is contained *in the saliva*, through which it is propagated from one animal to another. Now, as all the secretions are derived from the blood, how could this poison be found in the saliva unless first absorbed into the blood?

The positions assumed in my *third* proposition are, apparently, so well sustained by the symptoms of the first and second stages that to enter upon their discussion in this paper would seem to be unnecessary, involving, as it would, much useless repetition. But as differences of opinion may, and doubtless do, exist as to the immediate cause of death, a word or two in that connection may not be inappropriate.

It is contended by some writers that death is occasioned by an arrest of the respiratory processes, or *asphyxia*. That hydrophobia does, sometimes, terminate in this way in consequence of severe and prolonged *spasm of the glottis*, will not be denied. But that such is the *natural* or even *usual* manner in which the fatal result is produced, I am by no means prepared to acknowledge. That the natural tendency of great and prolonged irritation of the nervous centres is to occasion an *exhaustion of their excitability*, and consequent extinction of the functions of animal life over which they preside will, I apprehend, scarcely be controverted. That such prolonged irritation of the nervous centres does exist, in its highest form, in this affection, is abundantly manifested by all the phenomena which attend its progress. Besides, many cases are on record where all muscular commotion had ceased some time anterior to dissolution, and where death was evidently the result of a total exhaustion of the vital forces. I feel bound, therefore, to assume this to be the *natural* and usual mode in which death is produced, unless interrupted by the casualty adverted to.

That the *dread of fluids* is occasioned by the spasm of the muscles concerned in deglutition, which an attempt to swallow them excites, is not a new opinion. It has been held by many of the ablest writers on the disease. But why *fluids* should, preferably, or in a greater degree, excite spasm than solids, I am unable to explain; unless, indeed (in the state of exalted excitability of *all the senses* during the second stage of the disease), the *oscillatory motion* of fluids, or their more *sudden diffusion* throughout the buccal cavity, should prove to be the cause. The solution of this problem, however, I leave to older and wiser heads than my own.

"The increased flow of saliva appears to be a conservative effort of the vis medicatrix to eliminate the poison from the system, through the glands engaged in its secretion."

From the novelty of this proposition (which, so far as I am aware, is exclusively my own), it will naturally be expected that it shall be supported by an elaborate series of arguments tending to sustain its pretensions as a scientific truth. Candor compels me to acknowledge my inability to do this in a manner satisfactory even to myself; and were it not that it is the *keystone* upon which my indications of cure are based, I should hesitate long before committing it, thus unsupported, to the tender mercies of the professional critic.

Yet, however erroneous it may prove to be when tested in the crucible of scientific analysis, with the results of my single successful case in view, I shall continue to cherish it *as true* until its fallacies are demonstrated. I am aware that high authorities have denied the existence of *increased* salivary secretion in hydrophobia, because no evidences of *disease in the glands* can be detected. They infer that the frothy fluid which flows from the mouth, or adheres to the lips of patients and animals, is derived from the air-passages; and refer,-in support of this view, to the fact that large quantities of a similar fluid are frequently found in the bronchial tubes and air-cells of the lungs after death.

To argue that because a secreting organ may not have manifested signs of *disease*, therefore its secreting power could not have been increased, is illogical and contrary to well-known facts in medical science.

As to the assumption, that the frothy fluid which flows from the mouth is formed in, and proceeds from, the air-passages, it will, I apprehend, require more evidence than has yet been adduced in its support, to entitle it to much consideration. In all the cases of hydrophobia I have seen upon record, I have yet to observe among the symptoms enumerated, any reference to the *physical signs* indicating accumulations of fluid in the air-passages of the lungs. Surely had such accumulations existed before death, the physical signs denoting them would have been sufficiently prominent to have claimed for them especial attention. But, again, if the frothy fluid be formed in the bronchial tubes, it must, before reaching the mouth, pass through the trachea and larynx. Could it do so without exciting violent paroxysms of spasmodic cough and dyspnœa?

Reasoning, then, from these general deductions, I assume that there *is* increased salivary secretion; that this secretion *contains the virus by which the disease is produced*, and which is separated from the blood by the secretory action of the glands. Hence, I infer that the increased action of the glands is a conservative effort of nature to rid the system of the poison. Now, if these assumptions be correct, what are the plain and palpable indications they suggest for the management of the disease? Clearly, *first*, to reduce, if possible, the extreme excitability of the nervous system, the continuance of which occasions rapid exhaustion of the vital powers and death; and, *secondly*, to follow the path *pointed out by nature*, and endeavour to aid her in her efforts to expel the poison from the system through the channel she has indicated.

But where are the remedies capable of fulfilling these indications? If we are to rely on the recorded experience of the past, we shall find this a most difficult question to answer. Bloodletting, mercury, the whole class of narcotics and antispasmodics, have in turn been tried, and thrown aside as useless. Indeed, the entire materia medica has been laid under contribution, and almost every article possessing any activity has been resorted to, with the same unvarying results.

Where, then, are we to look for an agent capable of controlling this formidable disease? MERCURY I believe to be *the* remedy for hydrophobia. But to be efficient, it must be carried to the full extent of its *constitutional powers*, by which we shall be enabled to fulfil the *second* indication I have laid down for the treatment of the disease. But the query, "How are we to accomplish the *first* indication?" naturally presents itself; and I answer, "With the same remedy—mercury!" In the autumn of 1849, I witnessed the surprisingly prompt effects of calomel, in doses of sixty and eighty grains, in arresting the spasmodic action of the muscles, and checking the vomiting and purging attending two cases of cholera which occurred in my practice—this, too, after a fair trial had been given to calomel and opium, administered every half hour, in the usual doses, and when the patients were livid and nearly pulseless. From the results in these cases, I was led to suppose that calomel, *in large doses*, might prove as efficient in restoring the equilibrium of the nervous system when disturbed, as it is in equalizing the circulation in some other forms of disease. From the notes of Maria's case, it will be perceived that the convulsive paroxysms were suspended for a period of *eight hours* after the first dose of calomel; and after the third dose nearly *twenty-four hours* elapsed, during which she was entirely exempt from them. It was not, however, until the full constitutional effects of the medicine were obtained that they entirely disappeared.

Since I commenced this paper, my attention has been attracted to a case of hydrophobia, reported in 1811, by a Mr. Tymon, a surgeon in the East Indies, who claims to have cured the patient by *large abstractions of blood.* He says, "I began by bleeding him until scarcely a pulsation could be felt in either arm." But he adds, "Opium was afterwards given, and the patient *salivated with mercury.*" In my case, it will be observed, bloodletting was also practised, though not to the same extent as in the case treated by Mr. Tymon. I resorted to it, however, with no expectation that, of itself, it would exercise the slightest controlling influence over the disease; but simply for the purpose of obviating any tendency there might be to cerebral congestion, and for the further purpose of *promoting the more rapid absorption of the mercury*, by lessening the mass of the circulating fluids; and these, I apprehend, were the only beneficial effects produced by the large abstraction of blood in Mr. Tymon's case.

Insusceptibility to the action of medicines is a marked feature in this disease. Almost incredible quantities of opium and other narcotics have been given, without producing even the slightest degree of narcotism. This fact should be borne in mind in our efforts to bring patients under the constitutional effects of mercury; together with the additional fact that, from the rapidly fatal character of the disease, but little time is given in which to effect this object. By giving calomel in the doses here recommended (if my theory of its action on the nervous system be correct), we not only retard the fatal exhaustion resulting from the extreme excitability of the nervous centres, and thus gain time, but we rapidly saturate the system with the medicine and obtain its *specific effects* in a much shorter period than by the ordinary mode of administering it.

I have thus, as concisely as possible, stated the views in relation to hydrophobia, that have appeared to me to be most in conformity with the known phenomena of the disease, together with the indications of cure they suggest. That the whole theory here advocated may not be founded in error, I am unprepared to assert. If so, it will share the fate of all that have preceded it. But as my object in laying it before the profession is simply to invite renewed attention to a disease that, from its supposed incurability has, I humbly conceive, been too much neglected, I am willing it shall run the gauntlet of experiment and criticism, in the hope that some beneficial results may be attained.

The science of medicine, within a few years past, has, by the aid of analytical chemistry and the microscope, progressed with a rapidity unparalleled in any former age of the world. Why may not these powerful aids be invoked in the investigation of this disease? May not the subtle poison which produces it be isolated, and its sensible and chemical properties demonstrated? And might not the microscope detect lesions of structure that are undiscoverable by the naked eye?

Gentlemen who enjoy facilities for investigation not possessed by the humble country practitioner, would do well to turn their attention to this subject. It is a goal worthy their highest ambition; for he who shall strip hydrophobia of its terrors, by demonstrating its pathology and laying down a rational system of treatment for its cure, will carve out for himself a lofty niche in the Temple of Science, and place his name among the benefactors of his race. I would rather be *that man* than to sway the sceptre of an empire.

CARROLL COUNTY, MD., November, 1859.

ART. XIII.—*On the Production of Cataract in Frogs by the Administration of Sugar.* By S. WEIR MITCHELL, M. D. (Read before the Biological Department of the Academy of Natural Sciences, October 3, 1859.)

A FEW months ago I had occasion to perform a large number of experiments upon the osmosis of woorara through animal membranes. During one of these experiments, a solution of the poison was placed within the stomach of a rabbit, and, the two extremities of the organ being secured by ligature, it was suspended in syrup. At the close of two hours a portion of the syrup, about two drachms, was injected into the subcutaneous tissues of a pigeon, who did not suffer from it in any way. A frog of small size received at the same time, in the dorsal subcuticular sac, about one and a half drachms of the suspected syrup. Much to my surprise he became feeble, and died in about four or five hours. As it was not impossible that the syrup used might contain woorara, owing to this substance having exosmosed from the stomach, the death of the frog was attributed to the poison. To correct this result, the remainder of the syrup, about three ounces, was evaporated to dryness and treated with alcohol. The alcohol was then carefully evaporated to a small bulk, and injected under the skin of a pigeon. Upon close examination it did not appear to be poisoned, or to be in any way injured by the injected material. It now occurred to me that, as the amount of sugar employed in the case of the frog was very great compared to his bulk, it might, possibly, be destructive to life when used in very large doses.

Experiment.—To test this view, three frogs of middle size were treated with sugar in the form of syrup, two drachms being injected into the dorsal subcuticular sac of each animal. Within two hours the first frog became sluggish; the dorsal sac, which had gradually enlarged, swelling from an accumulation of fluid in its interior. This fluctuating mass was the syrup, augmented by the exosmosis of fluids from the vessels or extra-vascular tissues, or both. As the frog became more and more feeble, the larger part of this collection of fluid disappeared. The frog died at the close of ten hours. During the latter portion of this time my attention was arrested by the white appearance of the frog's eyes, which, on close examination, proved to be cataractous; the cornea remaining perfectly clear and transparent.

Experiment.—The second frog was treated with repeated doses of syrup given internally. The phenomena of exosmosis were far less marked in this case, but large quantities of mucus collected in both stomach and œsophagus, and were finally disposed of, in part, by vomiting. The mode of death did not differ from that last described. The cataractous appearance was not seen until just after the frog's death.

Experiment.—The third frog was placed in syrup, so that when seated in the usual posture the syrup covered its hind legs. Death took place in seventeen hours, but the cataract was not formed as usual, or, at least, was not externally visible. I did not examine its eyes post-mortem.

From the time I observed the development of this curious form of cataract it became a chief point of interest in the sugar poisoning, and was studied with attention. A few preliminary experiments convinced me that the best and most certain mode of causing the cataract was to inject the sugar in syrupy solution into the subcuticular sacs. The results thus obtained were extremely curious. Of eight frogs, nearly alike as to size, and all of one species (*R. pipiens*), thus treated with injections of two and a half drachms, six had cataract. In four of the six this was apparent during life, in one it was doubtful until after death, and in one no cataract could be seen until after death. Of the cataractous cases one was thus affected short of six hours, the remainder became so affected between six and thirty-eight hours. Two of the frogs suffered considerably from the poisoning, if such it may be termed; but both survived, and had no externally visible cataractous opacity. In all of these experiments the frogs were placed under bell glasses, tilted to insure ventilation, and were kept moist in each case by a piece of wetted sponge. In a second series of experiments, conducted in precisely a similar manner, it was found that when the frog died very early, as sometimes occurred, no cataract became visible. When they survived rather longer the cataract was a more frequent incident; but in a few cases no such formation took place, in despite of frequent doses of sugar to a very large amount.

It now became clear to me that I had discovered a method of producing in frogs an opacity of the crystalline lens, which might be of some value as illustrating the pathology of a subject which has always been one of extreme difficulty. So far as I am aware, no one has ever succeeded in causing cataract in the eyes of dead animals without wounding the organ, and all hope of being able to govern its synthesis in living animals has long since been given up. Many of the frogs upon whom I operated survived the constitutional effects, and remained more or less active with highly cataractous lenses. The change produced was not, therefore, of necessity associated with mortal symptoms, nor could it be regarded as a mere *post-mortem* phenomenon, since, even in the animals which did not finally survive, the lens became opaque some time before death.

With the view of ascertaining the cause of the opacity of the lens produced by the sugar poisoning, certain experiments were directed towards the determination of the effect of altering the external conditions while the frog was still suffering from the sugar. The first experiment was as follows:—

Experiment.—A large frog received under his skin about two drachms of syrup. Two drachms were also forced into the stomach through a tube, and the same amount was given in a similar manner at the close of an hour. As soon as the frog became sluggish he was placed in water and left there. He soon began to recover, and the water about him being changed thrice in the ensuing eight hours, he recovered perfectly. The dose of sugar would certainly have sufficed to destroy life had the supply of water been limited. A repetition of the last experiment satisfied me that, even with a very large dose of sugar, the animal was safe if allowed to remain in water kept fresh by frequent changes. Thus far everything pointed to osmotic changes as the probable agents in the production of the curious variety of cataract under consideration. The result of the next experiment, which in the sequence of thought naturally suggested itself as a test of this hypothesis, was such as to strengthen it considerably.

Experiment.—About two drachms of syrup were injected under the skin of a large frog. In twenty-four hours the lens was opaque, and, as the animal appeared lively, it was placed in water in order to test the permanence of the opacity. Ten hours in the water sufficed to remove most of the opacity from the lens, which began to clear in the centre first. Twenty-four hours after the frog had been placed in water the eyes were perfectly transparent, and the animal itself entirely well.

Experiment.—A distinct case of double cataract was produced in a large frog by the usual means. When the cataract first began to be visible it was placed in water. During five hours the opacity increased. In the ensuing eight hours it diminished perceptibly, but, although the water was changed twice a day, some traces of the cataract were visible during several days. The frog recovered entirely from all the effects produced by the sugar.

Experiment.—A large frog was seated in syrup. In a few hours he was nearly dead. The mucous membrane of the mouth and tongue was intensely congested, and the parts under the eye particularly so. On placing the animal in water he slowly recovered. The eyes remained clear throughout, and were not visibly affected. The congestion above referred to is a constant accompaniment of the death by sugar, but varies in degree to a remarkable extent, and does not seem to be in any way connected with the alteration of the lens.

It was found in the course of the several experiments related, when syrup was thrown into the subcuticular dorsal sac of a frog, it at first acquired increased bulk, owing to the rapid osmosis of their fluids from the frog's tissues. During this period no change occurred in the lens. As the saccharine solution became more and more diluted the current of interchange developed, and the sugar gradually soaked into the tissues of the frog, so as to be found in most of the subcuticular sacs as well as in the peritoneal cavity. As it was still possible that the original loss of water by the tissues during the first stage of sugar poisoning, might be the cause of the cataract which afterwards formed, and, as in this case, the effects produced would be in some respects similar to rapid desiccation, the following simple test was employed:—

Experiment.—Two frogs were placed in open jars and allowed to remain without water, the temperature being from 75° to 88° F. During the experiment one frog died on the fifth day, the other on the sixth day. In neither of them was there any cataract. Both frogs were much shrunken from the loss of fluid. Mere desiccation was, therefore, insufficient to cause the opacity.

From time to time, during the conduct of these experiments, the lenses of the poisoned frogs were carefully examined by Dr. Hewson, Dr. Hunt, and myself. Dr. Hunt very kindly furnished me with notes of his observations, and, as they accord perfectly with my own results, I shall content myself with quoting his description of the general appearances presented by the cataractous lenses: "The capsule of the lens is clear, and the cells upon its lenticular surface are unaltered. The opacity begins upon the posterior face of the lens directly in the axis of vision. It is next seen on the anterior surface around a clear central spot, which corresponds to the line of cleavage between the different systems of lens fibres or tubes, the centre of the star of the lens. The opacity gradually extends all around the lens, but as yet I have never met with a case where it involved the central portions; which, on the contrary, always remain clear notwithstanding this limitation. The outside colour of the lens is often of a pearly whiteness, and the simulation of a true cataract is absolutely perfect."

When such a lens is viewed under a low power, in place of the faint indication of the track of the lens fibres which is usually seen, the line of cleavage is unduly distinct, and the fibres setting out from it are edged with dark, irregular lines, marking the interlocking with the neighbouring fibres. A good deal of granular matter is also dispersed through the preparations. In more advanced cases the fibres or tubes are enlarged irregularly, and, their interior contents escaping, are seen abundantly in the form of yellowish pellucid globules about the tubes and throughout the field of view. My friend, Dr. Hunt, and I have also observed that the same changes may be produced by soaking the eyes of frogs in syrup. By properly regulating the strength of the syrup, cataract may be thus induced without any rupture of the eyeball. I have made no experiments with larger eyes, but it is probable that, in these, also, cataract could be thus induced, and the eyes then made use of to teach the operative manual. Some such resource has long been considered desirable by teachers of ophthalmic surgery.

It may be further remarked that opacity by sugar may be produced by simply soaking the exposed lens in sugar and water. However caused, the cataractous whiteness disappears when the lenses are placed in water, but they do not become entirely transparent where the opacity has existed for some time, or where it is very highly marked. This may be owing to the fact that in extreme cases the lens tubes are not merely altered in form, and in their relations to one another, but are also ruptured and partially emptied of their softer albuminous contents; lesions which no restoration of their aqueous supply could entirely relieve.

It appears, from the various experiments here related, that mere abstraction of water from the lens is insufficient to cause opacity; a conclusion which is strengthened by the knowledge that the exposed lens, when dried, does not become opaque. As it is found that the formation of the cataract attends the second stage of sugar poisoning, or that in which the sugar soaks into the tissues, it is probable that the direct contact of sugar with the lens is essential to the production of the phenomenon in question. That the changes which then result are osmotic seems sufficiently clear; but whether due chiefly to absorption of sugar in solution by the crystalline humour, or to exosmosis of the thinner portions of the lens fluids to the sugar, we have no means of determining. We may conclude, however: *First.* That sugar in large amounts destroys the life of the frog when given internally, injected under the skin, or thrown into the stomach. *Second.* That an abundant supply of water frequently enables the frog to eliminate the sugar and escape death. *Third.* That the formation of a peculiar variety of cataract is one of the most curious and striking symptoms attendant upon the sugar poisoning. *Fourth.* That the cataract is due to mechanical disturbances of the form and relative position and contents of the component tubes of the lens.

It is, perhaps, unnecessary to remark here that we have no knowledge of any such form of cataract in man. Notwithstanding this it would be improper to omit to state that cataract has occasionally been found to co-exist with advanced diabetes mellitus. Very recently, indeed, Mr. France[1] has reported five cases of double cataract occurring in diabetic cases. In all of these, the cataract, which was always soft, formed with great rapidity when the constitutional malady was far advanced; and in all of them the lens increased in size antero-posteriorly, and the opacity attacked portions of several strata of the crystalline humour at once, leaving clear and transparent interspaces. Now that the diabetes has any other causative relation to the cataracts in question than through the general impairment of the nutritive functions common in this disease, I do not pretend to say; but as it is possible that the long-continued presence of even a small amount of sugar in the blood may cause in the crystalline lens osmotic changes productive of opacity, I have felt it proper to call attention anew to the relation between the two maladies in question.

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[1] American Journal of the Medical Sciences, July, 1859, p. 266; from Ophthalmological Hospital Reports, Jan. 1859.

Art. XIV.—*Measurements of the Diameters of the Fœtal Head at Term, collected from Seven Hundred Cases of Labour.* By Joseph K. T. Van Pelt, M. D.

In calling the attention of the profession to the following cephalometrical tables, I deem it right to state *in limine*, that the most scrupulous caution has been observed to determine, with mathematical accuracy, the dimensions of the three most important diameters of the fœtal cranium.

As many of my cases have necessitated instrumental interference, from the magnitude or position of the child's head, a limited time has always been permitted to pass, thus allowing those diameters which were elongated or reduced from compression made by the forceps to assume their original extent; and the same course has also been adopted whenever in a natural labour any overriding of the frontal, occipital, or parietal bones has been observed.

The method of determining the diameters while the fœtus is still within the maternal organs, as commended by MM. Flamant and Foulhioux, and mentioned by Velpeau, proving uncertain, and their deductions being too variable to use in practice, I have employed the cephalometre of Stein,[1] its simplicity insuring a greater precision than can be obtained from any other expedient. I have also carefully preserved a written history of each of the seven hundred cases of labour that have come under my own personal attention. It is this accuracy of the deductions which gives to the record all its value and importance, at the same time it will be perceived that the details here presented are more numerous and varied than any hitherto contributed to obstetrical science.

It does not come within my province to dwell upon the importance of a knowledge of this subject, as bearing upon the judicious exercise of manual or instrumental skill, or in correcting the different aberrations of the head. If parturition were always unattended with accidents, never requiring the assistance of art, and if the fundamental principles of midwifery were not drawn from an understanding of the correspondence of the fœtal axes and those of the pelvis, then these researches would be a matter of but little moment.

It has been suggested that sex may exert an influence by increasing the bulk of the fœtal skull, and Drs. Clark, Burns, and Ryan assert that the heads of boys is from $\frac{1}{28}$ to $\frac{1}{30}$ of an inch larger than that of girls, while Prof. Simpson,[2] of Edinburgh, estimates the former as exceeding in its circumference by $\frac{3}{8}$ of an inch, in its transverse by $\frac{1}{8}$ of an inch, and in the inter-aural diameter by $\frac{2}{8}$ of an inch; regarding this difference as an expla-

[1] Nysten, Dict. de Médecine. Paris, 1858. Céphalomètre, p. 250.

[2] Edin. Med. and Surg. Journal, Oct., 1844.

ration of the greater frequency of stillborn males than females, we may also consider it as the frequent occasion of difficult, prolonged, and even fatal labours.

I have inserted here a collection of the longest diameters, as observed by me in the heads of both sexes; while many of them belong to females, the majority will readily be perceived to pertain to males: the occipito-mental measured $5\frac{13}{16}$, in eight males and in five females; $5\frac{14}{16}$, in four males and in five females; $5\frac{15}{16}$, in two males and in one female; 6 inches in three males; the occipito-frontal was 5 inches in twenty males and in seventeen females; $5\frac{1}{16}$, in twelve males and in six females; $5\frac{2}{16}$, in five males and in one female; $5\frac{3}{16}$, in one female; the bi-parietal measured 4 inches in twenty-one males and in fourteen females; $4\frac{1}{16}$, in seven males and in four females; $4\frac{2}{16}$, in three males and in three females; $4\frac{3}{16}$, in two males; $4\frac{1}{16}$, in one female.

My measurements of the fœtal head are the following, viz:—

I. In six hundred and forty-six crania the occipito-mental measured—

Inches.			Inches.		
$4\frac{15}{16}$	in	8	$5\frac{8}{16}$	in	115
5	in	25	$5\frac{9}{16}$	in	52
$5\frac{1}{16}$	in	20	$5\frac{10}{16}$	in	48
$5\frac{2}{16}$	in	29	$5\frac{11}{16}$	in	37
$5\frac{3}{16}$	in	29	$5\frac{12}{16}$	in	22
$5\frac{4}{16}$	in	61	$5\frac{13}{16}$	in	13
$5\frac{5}{16}$	in	56	$5\frac{14}{16}$	in	9
$5\frac{6}{16}$	in	54	$5\frac{15}{16}$	in	3
$5\frac{7}{16}$	in	62	6	in	3

The sum of which was three thousand five hundred and two inches and fourteen-sixteenths, and the mean or average five inches and seventeen-fortieths.

II. In six hundred and forty-six the occipito-frontal measured—

Inches.			Inches.		
$4\frac{1}{16}$	in	4	$4\frac{11}{16}$	in	77
$4\frac{2}{16}$	in	8	$4\frac{12}{16}$	in	81
$4\frac{3}{16}$	in	6	$4\frac{13}{16}$	in	77
$4\frac{4}{16}$	in	13	$4\frac{14}{16}$	in	76
$4\frac{5}{16}$	in	19	$4\frac{15}{16}$	in	30
$4\frac{6}{16}$	in	18	5	in	37
$4\frac{7}{16}$	in	27	$5\frac{1}{16}$	in	18
$4\frac{8}{16}$	in	37	$5\frac{2}{16}$	in	6
$4\frac{9}{16}$	in	48	$5\frac{3}{16}$	in	1
$4\frac{10}{16}$	in	63			

The sum was three thousand and thirty-three inches and fifteen-sixteenths, the mean being four inches and twenty-eight-fortieths.

III. In six hundred and forty-six the bi-parietal measured—

Inches.			Inches.		
$3\frac{4}{16}$	in	7	$3\frac{13}{16}$	in	82
$3\frac{5}{16}$	in	8	$3\frac{14}{16}$	in	72
$3\frac{6}{16}$	in	16	$3\frac{15}{16}$	in	31
$3\frac{7}{16}$	in	14	4	in	35
$3\frac{8}{16}$	in	30	$4\frac{1}{16}$	in	11
$3\frac{9}{16}$	in	47	$4\frac{2}{16}$	in	6
$3\frac{10}{16}$	in	72	$4\frac{3}{16}$	in	2
$3\frac{11}{16}$	in	78	$4\frac{4}{16}$	in	1
$3\frac{12}{16}$	in	132			

The sum being two thousand four hundred and nine inches and three-sixteenths, the mean being three inches and twenty-nine-fortieths.

Other diameters than those just mentioned have been enumerated by obstetrical authors, and they be multiplied *ad infinitum*; Churchill records seven, Velpeau seven, Jacquemier describes ten, Naegele four, and Scanzoni seven, Moreau also seven. Of the three that have just occupied our attention, different estimates have been made by writers on midwifery; the annexed table is a summary of their observations:—

	Occipito-Mental.	Occipito-Frontal.	Bi-Parietal.
Churchill,	5	4—$4\frac{1}{2}$	$3\frac{1}{2}$—4
Velpeau,	5	4	$3\frac{1}{2}$
Cazeaux,	$5\frac{1}{4}$	$4\frac{1}{4}$—$4\frac{1}{2}$	$3\frac{1}{2}$—$3\frac{3}{4}$
Maygrier,	5	$4\frac{1}{2}$	$3\frac{1}{2}$
Ryan,	5	5	$3\frac{1}{2}$
Burns,	5	4	$3\frac{1}{4}$—$3\frac{1}{2}$
Lee,	—	4	3
Ramsbotham,	$5\frac{1}{2}$	$4\frac{1}{2}$	$3\frac{1}{2}$
Moreau,	5	4 and 4 lines	3 and 8 lines
Ashwell,	$5\frac{1}{4}$	$4\frac{1}{2}$	$3\frac{1}{2}$
Murphy,	5	$4\frac{1}{2}$	$3\frac{1}{2}$
Baudelocque,	$5\frac{1}{2}$	$4\frac{1}{2}$	$3\frac{1}{2}$
Naegele,[1]	5	$4\frac{1}{2}$	$3\frac{1}{3}$
Jacquemier,[2]	$4\frac{1}{2}$	4	$3\frac{1}{3}$
Meigs,[3]	$5\frac{1}{2}$	$4\frac{10}{12}$	$3\frac{11}{12}$
My own,	$5\frac{17}{40}$	$4\frac{28}{40}$	$3\frac{29}{40}$

Prof. C. D. Meigs states that he measured the occipito-frontal of one hundred and fifty crania; in fifty-two of them he found it to exceed five inches; in 11, it was $5\frac{1}{12}$; in 8, $5\frac{2}{12}$; in 3 it was $5\frac{3}{12}$; in 1, $5\frac{4}{12}$; in 1, $5\frac{6}{12}$; in 2, $5\frac{7}{12}$; and in 1, $5\frac{10}{12}$: of one hundred and fifty bi-parietal diameters measured, sixty-eight of them exceeded 4 inches; in 19, it was 4.1 in 5, it was 4.2; in 6, 4.3; in 3, 4.4; in 1, 4.5; in only one case was i less than 3.6, the usual estimate, and in that case it fell to 3.4.

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[1] Geburtshülfe, Heidelberg, 1842, p. 64.

[2] Jacquemier, Traité d'Obstetrique, Paris, 1846, tom. prem. p. 296.

[3] "Proceedings" Amer. Phil. Soc., vol. iii. p. 127.

Scanzoni[1] furnishes seven diameters, viz:—

Longitudinal	1. Occ.-ment. (grosse diagonaldurchmesser) .	5″—5½′
	2. Occ.-front. (gerade durchmesser) . .	4—4½″
	3. From middle of gt. fontanel to deepest part of occiput (der klinediagonaldurchmesser)	3½—3¾′
Transversal.	1. From roots of both zygomatic processes (kleine querdurchmesser)	3—3¼″
	2. Bi-parietal (grosse querdurchmesser) .	3½″
Vertical.	1. From highest point of the vault of the cranium to the anterior circumference of foramen magnum (senkrechte durchmesser) . . . . . . , .	3½″
	2. Fronto-mental (die höhe des gesichtes) .	3″

Scanzoni[1] observes that Kilian recommends us to recognize the fact, tha at birth three varieties of the head are to be found, the elliptical (ellip tischen form), the round (runden), and the oval (ovale form), and to clas our measurements under those divisions. Accurate measurements have als been made by Dr. Addinell Hewson,[2] of one hundred and sixty-six crania his results are occipito-mental, 5.25; occipito-frontal, 4.68; bi-parieta 3.60. It will thus be perceived that the estimates as given by Prof. Meig Dr. Hewson, and myself, are far greater than those detailed by any foreig author, it then, according to Dr. Hewson, becomes a question whether th difference of the results is to be decided and explained by ethnological inves tigations.

I have commenced a new series of measurements, which will be publishe at some future period, when they have become entitled to interest by thei number.

ART. XV.—*On Localized Galvanism as a Remedy for the Photophobi of Strumous Ophthalmia.*

By ADDINELL HEWSON, M. D., one of th Surgeons of Wills Hospital, Philadelphia.

INTENSE photophobia constitutes the most prominent and characteristi symptom of the ophthalmia of strumous children, and is undoubtedly on of the chief causes of the obstinate and troublesome character of the diseases of the eyes in that class. The constant avoidance of the daylight, and, consequently of fresh air, both of which are so essential to overcome the peculiar constitutional taint of such cases, and the incessant fomentation to which they subject their eyes by burying them in their pillows, clothes, or handkerchiefs saturated with their tears and perspiration, for days, weeks, and even months together, not only tend to aggravate all the symptoms of the disease, but to protract them indefinitely, and, in many instances, to render the eyes incurable.

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[1] Lehrbuch der Geburtshilfe von Dr. Friedrich W. Scanzoni, Professor der Ge burtshilfe in Würzburg, Wien, 1853, Der Kopf des reifen Fötus, p. 88.

[2] Med. Exam. and Rec. Med. Science, vol. vii., 1851, p. 636.

In the poor children brought to the dispensaries connected with the ophthalmic hospitals, the early relief of this symptom is of the utmost importance. Amongst them, the worst cases are those who have intemperate parents, and who are, consequently, neglected and exposed to the worst hygienic influences. For such it is worse than useless to prescribe iron, bark, cod-liver oil, and other eutrophics, to be administered at home, for much valuable time will be lost waiting for the benefits expected to be derived from such remedies, as they will scarcely ever be given. Even the injunction to keep the child's face uncovered and to give it fresh air to breathe, will not be attended to. Indeed, I am firmly convinced, from no little observation in the matter, that whatever benefit is to be derived from attempts to treat these cases at their homes, must be by remedies applied or administered by the medical attendant himself. I have, therefore, always tried by means of local applications, to afford them as early relief as possible from this photophobia, so that they would, of their own accord, seek the *light* and *air*, the best remedies within their reach at home for their recovery, and I have always found improvement in all the other symptoms to follow the relief of this one. Even in private practice, and amongst the best classes, where every comfort, luxury, and attention that wealth can command are brought into requisition, we often meet with cases which seem to receive no benefit for weeks or months, but, on the contrary, grow worse notwithstanding the most faithful and skilful use of a great variety of constitutional remedies, until the photophobia is relieved by remedies applied especially for that purpose, when the child will begin to run about, and its convalescence become rapidly confirmed. The question might be asked here, Is not the abatement of the photophobia in the latter cases rather the first sign of the yielding of the disease to constitutional remedies, or in the former the result of improved health? In many instances of strumous ophthalmia, such may be the case, but not so in the instances to which I have reference; for I refer to those in which the health was steadily failing in spite of constitutional remedies, or in consequence of the administration of such remedies being neglected, and in which the relief of the photophobia followed so rapidly the use of special remedies directed for that purpose, as to leave no doubt of the cause of such relief or of the *modus operandi* of the remedies. My impressions of the good effects of these remedies have been so strong as to induce me to test them very critically for several years. I have thus tried blisters and tincture of iodine to the forehead and temples, vapours of various kinds (especially that of muriate of ammonia) directly to the eye, local and general anæsthesia, belladonna, and a variety of other articles. The benefits to be derived from the most, at least, of these remedies, have long been known to the profession. I shall, therefore, not comment upon them at present, but, on the contrary, confine myself to a brief exposition of the results which I have obtained from another remedy, the application of which I believe to be altogether novel. I refer to galvanism localized to the supra-orbital branch of the fifth pair of nerves, which has thus far proved to be the most efficient remedy I have ever used for this distressing symptom. I discovered this effect of galvanism during the early part of the last summer, whilst initiating some investigations on its usefulness in the treatment of ulcers, opacities, and other manifestations of impaired nutrition of the cornea, which investigations I was led to make on purely theoretical grounds of the well-known influence of the fifth pair of nerves over the nutrition of the cornea, so admirably demonstrated by Magendie many years since.

I am not aware that this peculiar effect of galvanism in the photophobia of strumous ophthalmia has ever been noticed before, nor do I know that galvanism has ever been employed as I have employed it, in the treatment of opacities and ulcers of the cornea; I therefore propose making known the results of my trials of it for both these purposes, and shall do so in two separate communications, for these two sets of symptoms of strumous ophthalmia are not necessarily dependent on each other for their intensity, and I have obtained decided benefit from galvanism in removing the physical effects of disease in the cornea where there was no photophobia present. I will, therefore, make the consideration of the latter influence of galvanism the subject of a future communication, and shall reserve for this future communication the details of the cases, even, which furnish the material of the present paper; for in all these there were lesions of the cornea which were treated after the relief of the photophobia by this same agent, and their details will be of more interest in that connection.

As it is also my desire to occupy the attention of the profession with only what has proved to be a remedy of very positive value for photophobia in my hands, I shall merely give here the results of my trials with the direct current of galvanism or chemical electricity, for I have tried the induced current of the magneto-electrical apparatus for the same purpose, but not with as satisfactory results.[1] Had the results with the induced current been the same, the intensity of the pain attending its application in the feeblest form to the supra-orbital nerve would render its use decidedly objectionable. To the direct current of galvanism there is no such objection, as the only sensation attending its application when properly localized, is that of a faint quivering or flashing of light resembling more than anything else the feeble sheet lightning of a hot summer's evening, and which proved rather a diversion than otherwise to many of my little patients.

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[1] I may here state that I have now employed electricity in a variety of forms in the treatment of various diseases of the eyes, including amaurosis, atonic ptosis, strabismus, and mydriasis.

The form of apparatus employed by me in all the experiments referred to in this paper, was the Pulvermacher's chain battery of sixty links, with ordinary vinegar as the chemical agent. The electricity from this I applied by moist conductors, which consisted of brass rods six inches long, slightly curved and surmounted at one end with a wooden handle, and at the other with a small brass cup, filled with wet sponge. These conductors were hooked to the ends of the chain, which constitute the poles of the battery, and I applied the sponge of the one attached to the negative pole to the skin over the supra-orbital foramen, whilst I made frequent contacts with the sponge of the other to the skin of the forehead at various points. These applications were generally made at intervals of three or four days, and only for a minute or two each time; and I would caution all who may resort to galvanism for these purposes not to attempt its too frequent or protracted use, or to use it in too great strength, for there is danger of permanent injury to the retina from such uses of it, as has been pointed out by Dr. Duchenne. It may, however, be used with safety more frequently than above stated. I have myself used it in private practice every day, and my sole reason for only using it at the intervals above stated, was one of convenience, as those were the intervals between my clinic days (Mondays and Fridays) at the hospital.

My reasons for employing Pulvermacher's battery were that (notwithstanding its well-known want of constancy of action), the facility of its application, and its comparative cleanliness made it far preferable for my clinical purposes to any other apparatus known to me.

In order that I might give this agent a fair trial, I suspended all previous treatment (for most had been under treatment), both local and constitutional, before beginning with it, and I avoided all cases which had been improving under such treatment.

I have thus tested it in thirty-two cases at the clinic of Wills Hospital, in which photophobia was a prominent symptom. In all these the strumous diathesis was well marked, and the part essentially diseased was the cornea. The ages of these patients ranged from one to sixteen years. Nineteen of them were females, and thirteen males. In nine, the photophobia was *intense*, in twenty-one it was *considerable*, and in only two was it *slight*.[1]

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[1] As these terms are not very definite, I wish to be understood as using them in the following qualified senses, viz:—

Intense, to designate that the least light, even that of a candle, was avoided by the patient as painful.

In all but three of these thirty-two cases, there was decided and immediate benefit following the very first application of the galvanism. These three exceptional cases were all of intense photophobia. In one of them the child (two years of age) was of German parents who could not understand English, and, owing to my ignorance of German, I could not satisfy myself on their return that there had been any improvement in the case. In the second, I discovered after the child had been taken away, that my battery was not acting, and I was, therefore, prepared for the unfavourable report I got. In the third, I have no note of any circumstance by which I can explain the failure of the first application, and must, therefore, admit it as a negative result, although I believe the fault to have been in the battery. In all these three exceptional cases, there were, however, unmistakable signs of improvement on the second application.

In all the instances where benefit followed the application, it was immediate, and was generally noticeable before the child left the institution, or was observed by its parents on the way home. The benefit was also more or less permanent. I say more or less permanent, for I have notes of the fact that in two instances the children's parents did not think they bore the light as well on their way to the hospital for a second application as they did immediately on going home after the first, although there was evidently still some improvement in both the cases.

In not one single instance of strumous ophthalmia, have I noticed any bad effects, or heard any complaints of its producing any injury to the eye.

The following is an abstract of the results I have obtained in these thirty-two cases:—

Of the nine cases in which the photophobia is specified as having been intense, two (both cases of pustular corneitis) were so very much relieved by the first application, that they were out of doors the next day, playing about in the strong sunlight; three were relieved, and only one improved by the first application (this single case was relieved[1] by the second application), three (explained before) were not apparently affected by the first application, but improved by the second, and decidedly relieved by the third.

Considerable, that the ordinary amount of daylight in a room was avoided by the patient as painful.

Slight, that the patient only complained of the light when out of doors on a bright day.

[1] I use the words *improved* and *relieved* in a qualified sense, thus: *Improved* to indicate that there was a very appreciable benefit derived from the application, but not sufficient to reduce the case to the next lower of the three grades in which I have attempted to classify them as regards the photophobia; *relieved*, when such a reduction of this symptom did actually occur. To be more explicit, I indicate a case of *intense* photophobia as *relieved* when it is reduced to the state represented by the term *considerable*, but only as *improved* when the patient can bear the light of a candle, but objects to the most moderate amount of daylight; so also for the other grades.

Of the twenty-one where the photophobia was *considerable*, ten were relieved by the first application, and eleven only improved, but relieved by the second. Of the two in which this symptom was but *slight*, both were cured, one by the first, the other by the second application.

As the subsequent improvement of the photophobia in all these cases might be thought to be dependent on the abatement of the physical effects of the disease which occurred rapidly after the second application, I shall not trace this effect of the galvanism any further in these cases for the present, especially as I think I have already furnished ample proof of the good it is capable of doing for photophobia, which was the sole object of the present communication.

Art. XVI.—*Electro-Magnetism in Subacute and Chronic Rheumatism.*

By H. B. Trist, M. D., Assistant Surgeon U. S. Navy.

Although not unmindful of the rule which forbids that general inferences be drawn from the results obtained by any special mode of treatment in isolated cases, yet I am induced to present the following report, because, from the strongly marked circumstances attending it, the case seems to me deserving of attention.

Lieut. C. D., æt. 26, of spare habit, nervo-lymphatic temperament, good general health. Had been a sufferer from chronic rheumatism ever since the arrival of our ship on this station (the Pacific), in March, 1858. During a period of about eighteen months (in the course of which our cruise extended as far west as the Fejee Islands, returning to Panama by the way of San Francisco, where we lay some time), the affection remained unabated; remitting at times, and again recurring with considerable violence. The medicines generally prescribed on such occasions were taken during the greater part of this period; affording, however, but transient relief.

In July of the present year (1859), the patient was seized with a severe attack of lumbago, which rendered the slightest motion, even in bed, exceedingly painful. I had then recently received at Panama, among other books awaiting me on the return of our ship from the Western Pacific, a copy of the most recent of Matteucci's masterly works, his *Electro-Physiology;* in which are given his beautiful and most ingenious experiments, together with his inductions from the facts disclosed by them, in the form of laws. These experiments and laws affording scientific confirmation to my previous vague impressions, from results empirically obtained by others, in the treatment of various affections, I was induced to think that electro-magnetism (strictly speaking, magneto-electricity; the instrument I was provided with being of the latter kind)[1] might prove beneficial in the present case. The

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[1] Dr. A. C. Dickinson's "Magneto-Electric Machine for medical purposes."

Besides other advantageous peculiarities—which are explained at length in the inventor's pamphlet, accompanying the machine—there is one which is not ex-trial was accordingly made, with the laws established by Matteucci for my guide, and proceeding with the utmost caution. The current was passed from the lumbar region to the crural nerve, *placing the positive pole over the former*, so as to cause the current to flow in the direction of *the distribution of the nervous filaments;* a precaution which, though apparently of trivial importance, is of the greatest moment; since (as Matteucci's experiments prove) effects altogether different from those indicated would have been produced, had the current been passed in the opposite direction.

The first application, continued for half an hour, and of such force only as just to be felt by the patient, afforded so much relief, that he was enabled to rise, dress himself, and move about; the back still feeling stiff and painful on flexion of the body. On a second application, an hour or two afterwards, relief was so complete that the patient was able to leave the ship and take a walk of some length.

The limb having become visibly atrophied, I advised the continued use of the battery, once or twice daily, from the sacrum to the ankle-joint. In three months, not only had the pain entirely disappeared, except an occasional feeling of soreness, but the muscles had regained nearly their normal size.

This case is the more interesting, from the fact that the climate of this ocean is pre-eminently propitious to rheumatic and neuralgic affections. The patient had been more or less a sufferer during the whole cruise, up to the time when this treatment was had recourse to; since which, although

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plained, or noticed, but, whether a part of his invention or not, is remarkable for its ingenuity—the very simple contrivance by which the "interruption" of the current is effected. In Matteucci's work, a highly commendatory mention is made of an "interrupter," of French invention, to which he necessarily attaches great value, his experiments proving the indispensableness of "interruption," inasmuch as the effect of the current (of any current of a given strength), depends, not at all upon the length of its continuance, but wholly upon the number of distinct shocks; that is, upon the frequency with which the current is broken or arrested, during its flow. This is owing to the fact that the action of the fluid is confined to the two instants of its entrance and of its departure. These moments—although inappreciable by our perceptions as is the interval which separated them—are yet marked by widely different phenomena.

In the pamphlet just referred to (in which the description of the machine is followed by directions for its use), Dr. D. states that the defects of plan and of construction of other machines, as explained by him, are "the main, and almost *the only reason why medical men have been disappointed*" (thus italicized by himself) "in the results desired to be obtained, in many cases where their judgment was correct." Without disputing the justness of his criticisms upon those machines, and that their defectiveness may have been the cause, in some instances, of the effect ascribed to them; one thing is certain, such disappointments can scarcely have been otherwise than inevitable, for want of the guide in the application of this powerful agent, which is afforded by Matteucci's *laws;* above all, that one of them which shows the entire dependence of the effect, in its very nature, upon the *direction* in which the current is made to flow, relatively to the nervous distribution.

still exposed to precisely the same exciting causes, he has been free from pain, requiring only an occasional resort to the battery.

In several cases of subacute rheumatism, the same treatment has been employed, and it has been attended with uniform success. In a violent attack of pleurodynia, in which topical applications had little or no effect, the pain was much assuaged by the first application; and it entirely disappeared in a couple of days.

In chronic cases, in which the use of the instrument has to be kept up for several months, it is best to suspend it for a few days, after a fortnight's application.

U. S. Ship Vandalia, Valparaiso, October 11, 1859.

Art. XVII. — *Vesico-Vaginal Fistula.* By R. Crockett, M. D., of Wytheville, Va.

As the profession are indebted to the ingenuity and skill of Dr. J. M. Sims for the success which now attends this operation, it can be claimed as an American surgical triumph, and I look upon every successful case, now, as adding another green leaf to the wreath that entwines his professional brow.

On the fifth of November last I operated on Mrs. U———, of this county, for vesico-vaginal fistula, a brief report of which I give below.

Mrs. U., aged thirty-two years, was delivered of her first child about three weeks before I was called to see her. Her labour was protracted and painful, and rendered more difficult from a deformity of pelvis, resulting from an unnatural direction of the right ascending ramus of the ischium, contracting the space of the inferior strait so much that embryulcia had to be resorted to. A speedy delivery was rendered the more necessary from the occurrence of a puerperal convulsion a short time before.

Examination.—Found a fistula of sufficient size to admit the forefinger, situated in the right side of the vesical trigone, which she assures me was produced some two months before her confinement, one day whilst weaving. It must have resulted from the lodgment of a calculus there. She has since discharged small lithic acid calculi.

Operation.—Assisted by my son, Dr. Joseph Crockett, she was placed in the usual position directed for that operation. No anæsthetic was administered. After the introduction of the lever speculum the edges were *freely* pared, the silver sutures introduced and clamped as directed by Dr. Sims. When the ends of the sutures were cut, I bent their ends down and pressed them into the shot with the forceps, so as to prevent any irritation.

The patient was placed in bed on her back, in which position she remained, and the self-retaining catheter introduced. Her bowels were constipated by the administration of half a grain of opium every eight hours. Her diet cream and thin crackers with a little coffee, to have water freely when thirsty.

There was no departure from the recommendation of Dr. Sims either in the operation or after treatment, except in this. The doctor says "the patient's comfort is greatly promoted by washing the vulvar opening twice a day or oftener with warm or cold water, as may be preferred."

"For this purpose a common bed-pan is placed under the nates as she lies on the back; when the water may be thrown into the os externum, over the mons, vulva, and inguinal regions by means of a syringe holding some six or eight ounces. The water has to be thrown with considerable force to remove the urinary deposits from the nates and genitals."

I placed an oblong piece of oiled silk under the end of the catheter, pressing a fold gently between the labia, then folding the lower end in such a manner as to convey the urine as it escapes from the end of the catheter into a small, shallow vessel, tapering nearly to a point, placed between the thighs. If necessary the piece of oiled silk can be retained, by fastening a piece of tape to each of the upper ends, and attaching these to the abdomen by small adhesive strips. On the third day an examination was made and I found the sutures all doing well. On the eighth day the union was so perfect, that I removed the sutures, the cicatrix presenting a smooth and beautiful appearance.

The patient was replaced in bed and the recumbent position maintained for a week, and the use of the catheter also.

The bowels were moved on the tenth day by the administration of an enema of flaxseed mucilage. In the mean time not the slightest inconvenience resulted from constipating them that length of time.

The operation was performed eight weeks after she was delivered.

Art. XVIII.—*Tracheotomy for the Removal of a Persimmon Seed.*

By E. Mason, M. D. Wetumpka, Alabama.

On the 11th of December, 1858, Mr. G. L., of Coosa County, brought his little son to me, and gave the following history of his case: The little fellow, seven years of age, while attempting to bend down a sapling, clinging to it with his hands and feet, his back towards the ground, was taken suddenly ill; his father, who came immediately to him, finding some persimmon seed in his mouth, suspected the difficulty, and sent for Dr. McKenzie, who lived close by. When the doctor arrived, he at once recognized a foreign substance in the trachea, and advised the child to be brought to me for its removal. The accident occurred in the forenoon, and I saw the patient about twilight, by which time the urgent symptoms had passed off. His breathing was then croupy, cough troublesome, his countenance bore rather an anxious expression, and during the paroxysms of coughing, the foreign body could be distinctly heard passing up and down the trachea; but still these symptoms did not seem threatening, and he was comparatively comfortable.

The following morning he was seen in consultation with Drs. Moore and Harris, and the presence of the substance in the trachea gave so little inconvenience, that it was agreed that the little patient should be sent home, hoping the seed might be expelled during a paroxysm of coughing; but should he be threatened with suffocation, or should constitutional disturbance give warning of danger, his father was directed to give immediate notice.

From this time until the 15th he suffered very little inconvenience, except not being able to rest well at night. On that day he had some fever, which increasing on the 16th produced slight spasms. We were summoned to see him on the 17th, and found him pale, with a wild expression of countenance; there was considerable bronchial irritation, and the stridulous breathing was more aggravated, the paroxysms of cough were more severe, and his nervous system was considerably disturbed. The local symptoms and the constitutional irritation warned us that it was unsafe to wait longer for the expulsion of the foreign body by coughing.

Assisted by Drs. Moore, Harris, and McKenzie, I proceeded to perform tracheotomy. We attempted to put the patient under the influence of chloroform, but the feeling of suffocation became so distressing that he begged not to breathe it, urging that he would hold perfectly still, which promise, much to our astonishment, he faithfully kept. Commencing at the inferior border of the cricoid cartilage, I made an incision downwards nearly to the top of the sternum, and dissected carefully down towards the trachea. The thyriod vessels and the isthmus of the glands were pushed aside with the handle of the scalpel, and the dissection completed with the loss of but little blood. After waiting a few minutes for the slight hemorrhage to cease, I divided three rings of the trachea, and had the gratification of seeing the persimmon seed immediately expelled, with considerable force, through the opening, during an effort to cough. The wound was closed in the usual manner, and cold water dressing applied. He was given a mercurial, and put on small doses of tartar emetic, with opiates when necessary, to quiet his cough, or to procure rest. On the 19th air ceased to pass through the opening in the trachea, and the wound healed rapidly.

On the 20th the bronchial irritation and the febrile excitement subsided, and in a few days the little patient was well again.

In the September No. of the *New Orleans Medical and Surgical Jour-*

nal, Dr. Stone, after reporting a case of tracheotomy for the removal of a grain of corn, appends some excellent remarks in favour of immediate action, where it is ascertained that foreign bodies have lodged in the trachea. Although the case above reported did well after waiting six days, yet I am satisfied that the delay subjected the patient to great risk, and under similar circumstances I should operate immediately. The danger of sudden suffocation, and of grave local and constitutional irritation from the presence of a foreign substance remaining in the trachea, overbalance the possibility of its being expelled during a paroxysm of coughing.

ART. XIX.—*On Incurved Toe Nail.* By ISAAC G. PORTER, M. D., of New London, Conn.

HAVING myself been a sufferer ('ομοιοπαθης[1]) from this annoying affection, I can speak feelingly on the subject, and I am induced to record my experience, personal and otherwise, in regard to it, in the hope of affording relief to others similarly afflicted.

This affection arose in my case, as is usual, from wearing too short a boot, by which the dorsum and edges of the nail were pressed downwards, and the integuments upwards, for want of room. At the time of its occurrence, I was visiting similar cases, and, it being easier to manipulate on others than on one's self, they escaped with only slight inflammation and suffering, but before I was aware, profuse granulation had occurred in my case, and months elapsed before the annoyance ceased. It is well known how surely and rapidly recovery ensues in such affections, when from any cause, such as a fever, the patient is compelled to cease walking, and to recline in a horizontal position; but the problem is, as in this case, how to be restored, without relinquishing active exercise. Treatment was attempted by endeavouring to remove pressure, and drawing the soft parts from contact with the nail by adhesive plaster, at the same time interposing lint. Inflammation and suppuration, however, having occurred at the outset, the integuments being thereby thickened and enlarged, and the granulations profuse and irritable, the edge and corner of the offending nail could not be removed. Caustics and the knife were frequently used, but no permanent benefit resulted. The seat of the affection was, as is usual, the outer corner of the large toe.

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[1] Sydenham inculcates the beautiful sentiment, that "the physician ought seriously to consider, that he, himself, is not exempt from the common lot of mankind, but is subject to the same laws of mortality, the same accidents, and the same sorrows as others; therefore, let him, *fellow sufferer* ('ομοιοπᾶθης) as he is, with greater diligence and love, seek to relieve the sick and the afflicted."

The points subsequently developed were the following:—

1st. The importance of removing *all* pressure, even the slightest, from the irritable granulations, an elastic stocking being sufficient to perpetuate the mischief. This becomes especially manifest in drawing on a boot, and until the evil is in some way abated suppuration and granulation will continue. This was effectually accomplished by the following procedure, a course which it may be prudent to adopt even in mild cases where the evil has previously existed merely as a preventive measure. After a loose stocking had been drawn on the foot a friend was requested, having pulled its extreme end forward, to stitch a seam partly across it in front of all the toes except the large one, thereby hanging or resting the stocking on the second and third toes, leaving the affected phalanx in a sulcus. Thus all pain was prevented even in drawing on a boot. But not even a buckskin shoe could be worn. Hence a circular piece of leather from a partly worn boot the size of a quarter dollar was removed directly over the affected nail. To avoid attracting notice when abroad, a small piece of black silk was tacked on the stocking beneath the circular opening in the boot, which prevented nearly all observation and inquiry. This method is much more effectual than the crucial and other incisions which are sometimes made.

2d. The point is mooted whether, in such cases, it is proper to remove a portion of the nail, some affirming that, as it will soon grow out, it will ultimately do no good, preferring, as they say, to let the corners of the nail grow to considerable length; while the middle of the dorsum is kept very short, and shaved thin. This opinion is doubtless founded on a misnomer in the title of this affection, and a mistake as to its true cause. "A name often blinds us to facts." It is not affirmed that there may not be cases where, from mechanical injury, or a diseased condition at its base, the nail may not be incurvated; but, in a very large proportion of cases, the disease is in the soft parts, and arises from pressure. Where the inflammation is slight, or even where suppuration has occurred, if the corner of the nail can be skilfully removed, the trouble ceases, as certainly as when a thorn is removed from the flesh, provided all future pressure is prevented; and, long before the nail grows out, the parts will have healed. Having never met with a true incurvated nail, the writer has nothing to offer in regard to its proper treatment.

3d. If granulations have in any case freely sprung up, and have effectually concealed the corner of the nail which is irritating the swollen integments, then it is doubtless proper to foment and poultice the part, that inflammation may be allayed, and an attempt made to remove a portion of the nail. If unsuccessful, then the choice lies between the knife and caustic, and, if the latter, the question arises which one is the best. In the present case, the knife was used by a friend, as were nit. argent. and exsiccated alum; but the granulations returned, possibly because *all* pressure was not removed. Subsequently, resort was had to the method mentioned above for relieving even the weight of the stocking, and, soon after, to a hot, saturated solution of alum, as recommended in this *Journal* (July number, 1854, p. 246) for obstinate ulcers about the toe nail. It was applied with a hair pencil as hot as could be borne, following which, small pledgets of lint, wet with it, and covered with oil-silk, were applied. After twenty-four hours, dry lint was substituted, wet and dry applications being alternated. Under this treatment, which was not painful, the granulations flaked off, or were absorbed, and, at the end of three days, were so far diminished that the macerated corner of the nail was easily removed. Many months have since elapsed, with no return of the annoying evil.

The hot, saturated solution of alum acts kindly as a mild caustic. Why may it not be of use, generally, in spongy granulations of small extent? Being applied hot, in order to manifest its greatest efficiency, may be an objection in irritable surfaces of much extent. Holding in solution, as it does, an excess of the salt, this excess is deposited, on cooling, in an impalpable powder; and, in small granulations or ulcerations, particularly about the nails, its action is unique and salutary.

REVIEWS.

ART. XX.—*A System of Surgery; Pathological, Diagnostic, Therapeutic, and Operative.* By SAMUEL D. GROSS, M. D., Professor of Surgery in the Jefferson Medical College of Philadelphia, &c. &c. &c. Illustrated by nine hundred and thirty-six engravings. In two volumes. Philadelphia: Blanchard & Lea, 1859. 8vo. pp. 1162 and 1198.

AN American systematic work, embracing the whole theory and practice of surgery, is well calculated to command attention, even without the prestige of name and imprint which belongs to the one which we are now about to notice.

There has been no lack of admirable works on other branches of medical science; many of these are well known, and we might point to them with reasonable pride, as affording ample evidence of proficiency in more than one department of medical instruction. Nor, in spite of much vociferous croaking, is our surgical literature deficient in clinical records, practical essays, elaborate monographs, and really valuable treatises on most of the important surgical questions. It is in elementary teaching, more than in actual working progress, that our writings on surgery have been in the background; in the absence of text-books of sufficient scope and weight to compete with such manuals as the lectures of Erichsen, the Principles and the Practice of Miller and others; in the non-existence, too, of works of higher grade to take the place of the yet unrivalled productions of Chelius, Vidal (de Cassis), Boyer, and others of similar extent and character.

There is no doubt as to our decided independence in the practice of surgery—its many admitted triumphs and unaided steps in advance; but in spite of its popularity, and the well-earned distinction of so many of its teachers, our young men have been compelled to have recourse to foreign sources for too much of what they ought to have been provided with at home. The reprints, so much complained of, are the natural exponents of an urgent want, and are seen in our students' hands solely because so few satisfactory substitutes have been put within their reach by those who ought long ago to have met the evil, not by complaining of it, but by just such an effort as is embodied in the portly volumes now before us. This is a beginning in the true direction which every right-minded member of the profession will gladly welcome, because it is not only legitimately but ably made; it deserves success, and will obtain it, from the simple fact that it is the very first treatise, on the entire subject as taught and practised, that has yet been published in the country.

Our epitomes, outlines, compends, lectures, and other more ambitious essays, however useful in their way and time, are, with one or two exceptions, either too much out of date or too incomplete to be preferred by learners to the recent, more convenient, and more instructive European class-books; while they are, moreover, too far behind the colossal treatises of Chelius, Vidal, Boyer, Velpeau, and many others, to satisfy the more advanced inquirer.

Our author has endeavoured to combine, more or less, the objects of the two classes of instructors; and thus, in some measure, to provide a succedaneum for this too exclusive reliance on foreign contributions, by furnishing to both classes of readers a standard system of surgery, which, while claiming a basis of individual experience acquired at home, is intended to approach, in erudition, the range and level of the European masters. His aim "has been to embrace the whole domain of surgery, and to allot to every subject its legitimate claim to notice in the great family of external diseases and accidents." With such competitors before him this is certainly a bold attempt, and deserves a cordial acknowledgment from all American readers, were it only for the example's sake, whatever the success attending it may be. Indeed, it is impossible to view the result of an enterprise so honourable to all concerned, in these full, well printed, and beautifully illustrated volumes, without a strong feeling of respect; and we doubt not that the ability, industry and confidence in the appreciation of the profession which have led to their completion in so creditable a form will be abundantly requited by their speedy circulation.

How far the main object of the publication has been accomplished in meeting the wants of American readers, must, of course, remain a matter of opinion, which it is a part of our present duty to discuss. Could we be allowed to indulge in the more agreeable office of congratulating the author and his brethren on the happy fulfilment of his task, we might content ourselves with a brief account of the general arrangement and of some of the more salient features of the work. But we cannot forget the heavy obligation resting on us in expressing our opinion upon the crowning demonstration of one whose position and reputation give great weight to his words, and who writes as if he deeply felt the force and responsibility of his double vocation as a teacher at home and a representative abroad. In the inevitable sense of accountability to a common tribunal as his critical sponsors, must he find our apology for some occasional strictures, in regard to his manner and matter, which might not be thought worth noting in the review of an inferior book, or of a less prominent author.

His work is undoubtedly the best of its kind that has yet been produced in this country; and in many respects it is equal to those of a similar class of European publications; while, in extent of scope and fulness of discussion and illustration, it is superior to some of the most popular. Nevertheless, we should be sorry to see it generally regarded as an adequate exemplar of the present state of the surgical science and art of this country. It has some peculiarities which, by giving it a stamp of greater independence and originality, and adding somewhat to its individual character, may exalt it in the estimation of a certain description of admirers; but, for all truly practical intents, many of these oddities are only marks of weakness in a work which is designed to take a national position, and to retain a permanent hold upon students and practitioners as a classical authority.

We feel some embarrassment, in making up our estimate of its destined position, from the difficulty in determining in what light we are to consider it; whether as a text-book for students and junior practitioners, or as a book of reference for practitioners alone. It must be intended as the companion-book to the author's lectures, and hence to be diligently conned by a large body of embryo surgeons; and yet it is dedicated and addressed especially to those who have already begun their surgical career. It is offered, not as an introduction to the more extended study for the use and assistance of his and other pupils, but "as a systematic and comprehensive treatise on the science and practice of surgery considered in the broadest sense; one that shall serve the practitioner as a faithful and available guide in his daily routine of duty."

The important distinction involved in this ambitious undertaking to supply the office of a surgical library as well as of a daily practical adviser, cannot be misunderstood by the reflecting reader. The undergraduate may make the most of the aid and comfort that is proffered to his seniors, although the volumes may not suit his convenience, in size and form and elementary detail, so well as some other less cumbrous and more compendious favourite of his early readings; and we hope he may, as many doubtless will, prefer their teaching as his ruling monitor, until he is properly prepared for a wider range of study; but the intelligent practitioner would hardly rest content without something more comprehensive and more minute in practical directions, if not more profound in theory, in a work of last resort. However important it is to secure to the beginner a solid groundwork for his later progress, no one would expect the same thoroughness in the preparatory course, that is essential to the guidance of the subsequent practitioner; and hence we might willingly pass by sins of omission and commission, in the lessons of a teacher intended for his pupils, which could not be left unnoticed in the standard guide-book, the precepts of which are set down as virtually beyond appeal.

Looking at the treatise of Professor Gross from the higher stand-point which he seems to have elected, we are not prepared to boast of it as a sufficient substitute for the larger and fuller works of similar pretensions which have come to us from the European press. We have no idea that it so satisfies the author himself, now that he can make the comparison; and we believe that he will be among the first to desire either to condense it for the humbler but not less useful function of a text-book, or to raise it, as he can and we doubt not, will do, in future editions, to the more elevated position which it ought to occupy. It is because we earnestly desire and expect this ultimate success that we are not disposed to withhold a present expression of regret that he is not yet within the goal to which he should eventually attain for the honour of the American profession.

We confess to a dread of these attempts to crowd into the narrow compass of one or two volumes, however bulky and small in type, the contents of a working library, or anything beyond the sphere of an introductory manual. The man of only one book can never be a safe guardian of the health and physical integrity of his fellow-men in disease or injury. We strongly doubt the possibility of cramming into a work of two volumes, albeit scarcely portable, a detailed exposition of the science and art of surgery—however concise and free from extraneous matter it may be—which would not fail to be a satisfactory adviser to the inexperienced practitioner, under even the ordinary contingencies of daily practice. We do not know of such a feat of book-making in any country, although instances might be shown, in different languages, of the necessity for greater space, in cases where every page is densely filled with strictly essential matter, and where the pages greatly exceed in number those of our author.

Nothing short of an encyclopedia can adequately do this service; and no less extended work can safely serve the purpose of a generally available reminder upon the ever-varying multitude of topics and questions, even with a compactness of arrangement and a brevity of language and discussion which are not predominant characteristics of the present treatise.

Under this view of the case we would expect, in an encyclopedic volume of not over twelve hundred pages, the largest amount of positive knowledge in the smallest possible space; but, unfortunately, this expectation is not gratified. It is true that, along with much that needs pruning in language, tone, and style, there is a great deal that is unexceptionable in these important requisites. Some passages are models of clear, correct and terse description; others again are as entirely the reverse, being diffuse and magniloquent in style, and not very sparing and choice in the use of adverbs and adjectives.

In spite, too, of his own warning in the preface, we are struck, in looking over the chapters, with the scarcely avoidable inequality of distribution as to topics, which has justly troubled him in other writers. A greater interest in subjects with which he happens to be most familiar, has, as usual, beguiled him into an over-estimate of their relative importance; while in a few instances an undue prejudice has evidently produced the opposite effect.

The article on "Tuberculosis of the Joints, especially as it affects the Hip," although by no means exhaustive on the subject, occupies twenty-six pages; that on neuralgia, one of doubtful surgical interest, ten pages. On paralytic affections there are six, and on the teeth, four pages; while diseases of the ear are dispatched in twenty-nine pages, and diseases and injuries of the eye in one hundred and nine. The chapter on the eye is not much more than four times as long as the section on hip-disease, and but little over twice the length of that on injuries and diseases of the head. We do not mean to say that either of these articles is unreasonably long, or that the subjects generally are not fairly discussed; but we do protest against the superficial manner in which he has treated the diseases of the eye, the unjust sneer at specialists, which disfigures a prefatory page of idle comment, to the contrary notwithstanding. It might easily be shown how the material of this chapter bears the refutation of its author's erroneous estimate of his difficult subject in its own striking insufficiency. We shall not, however, waste time in attempting to enlighten him upon a question which is too well settled among the highest surgical authorities not to render the bad taste and confused verbosity of this unfortunate passage a gratuitous injury to the credit of the book. Errors of omission, however, are not the most obvious short-comings of the work; a greater defect, especially in a text-book for students and young practitioners, is its diffuseness in many places, and the manner in which, by episodical discussion, often declamatory, the bulk of the volumes is increased without any compensating practical advantage. Their practical usefulness would be greatly augmented, if the space lost in figures of speech and various critical demonstrations in regard to matters of opinion, which might often be disposed of more agreeably in milder language, were occupied with specific references to the authorities named, and with others which might be cited for the benefit of students and professional inquirers.

We believe it to be true, as our author affirms, "that there is no topic properly appertaining to surgery, that will not be found to be discussed, to a greater or less extent, in these volumes;" and we fully agree with him in the propriety of devoting "a larger space than is customary to the consideration of inflammation and its results, or the great principles of surgery," and of bestowing elaborate attention "upon the discrimination of diseases," and "on general diagnosis;" but, considering the paucity of references and the absence of many practical details, we do lament that all of this and much of his other matter, were not condensed into a more available compass.

No properly informed reader can doubt the weight of authority which necessarily attaches to the dictum of Professor Gross; and all, of course, will regard these volumes in the light in which he offers them, "as embodying the results of a large personal, if not of a ripe, experience, of extensive reading, and of much reflection; in a word, as exhibiting surgery as I myself understand it, and as I have for so many years conscientiously taught it." Still, in glancing over the many hundred pages, and especially in resorting to his various chapters for the investigation of many difficult questions, it is natural to expect, in such an amount of matter, more definite assistance toward the further prosecution of the study, in the records of the labours of the master minds which he has consulted in the extensive reading, which is one of the qualifications set forth in support of his authority as a teacher. We cannot accept the dogmas of any one writer as final, least of all in a book of general reference; and we should have little confidence in the student or practitioner who could be satisfied with such a narrow limit to his preparation for the grave and ever-changing responsibilities and contingencies of his important calling. The value of "a faithful and available guide to the practitioner"—is surely quite as much enhanced by the documentary and specific evidence it affords of attentive examination of other sources of information, as by the highest authority that mere reputation for experience can establish; nor will any amount of personal influence or asseveration, which is not strengthened by full and explicit citation of standard works, be likely to establish the position of a systematic text-book.

Notwithstanding these and some other discouragements at first view, we have been agreeably disappointed in many parts of these volumes, after a prolonged and conscientious examination of their contents; being well satisfied that the author has succeeded in overcoming many difficulties, inseparable from his task. It is a good sign that a better acquaintance with the book increases our regard for it as a whole. The more we read of it the better we like it, in spite of its numerous minor blemishes, and a few greater defects. An extended analysis is out of the question in a review of a systematic treatise. It will be sufficient for us to give a brief survey of the general arrangement, and a slight running commentary upon a few among many things which have attracted our attention in our inspection of the chapters.

The whole subject is treated under the two heads of General Surgery and Special Surgery. The first of these occupies 642 pages, and the second some 1627 pages, 36 pages being devoted to a full and carefully prepared index. The first part, or General Surgery, is divided into nineteen chapters, which treat of irritation; sympathy and idiosyncrasy; congestion; inflammation; terminations and results of inflammation; textural changes; congenital malformations; tumours or morbid growths; scrofula; wounds; effects of injuries upon the nervous system; syphilis; general diagnosis; minor surgery; operative surgery; plastic surgery; subcutaneous surgery; amputations in general; excision of the bones and joints; and lastly, anæsthetics, or the means of averting pain.

In the second part, on Special Surgery, or the diseases and injuries of particular organs, textures, and regions, we have twenty-eight chapters, of which the first eight are in vol. I., and the remainder in vol. II. The eight chapters in vol. I. are occupied with diseases and injuries of the skin and cellulo-adipose tissue; of the muscles, tendons, bursæ, and aponeuroses; of the lymphatic vessels and ganglions; of the nerves; of the arteries; of the veins; affections of the capillaries; diseases and injuries of the joints. The twenty chapters of vol. II. present us with diseases and injuries of the bones and their appendages; of the head and of the spinal cord and column; diseases and injuries of the eye; diseases of the ear; injuries and diseases of the nose and its passages; of the air-passages; of the neck; of the chest; of the jaws, teeth, and gums; of the mouth and throat; hernia; diseases, injuries, and malformations of the anus and rectum; wounds of the abdominal organs; diseases and injuries of the male genital organs, of the female genital organs; special excisions of the bones and joints; special amputations; affections of the extremities.

A better idea may be formed of his mode of arranging his subjects by the following extract from his preliminary observations, being the first two paragraphs:—

> "Under the division of GENERAL SURGERY, I shall consider, at some length, the leading facts illustrative of the great principles of surgical disease and injuries, and of the operations necessary for their relief, removal, or cure. Beginning with the subject of irritation, sympathy, and congestion, as intimately concerned in the production and maintenance of many of the most common and interesting morbid phenomena, I shall pass successively in review all that relates, generally speaking, to inflammation and its effects; textural changes; new formations, whether benign or malignant; wounds or poisons; as all these affections are liable to occur in every organ, tissue, and region of the body. To this division of the book, also, naturally appertain the subjects of general diagnosis, surgical instruments, and other appliances; and, lastly, anæsthetics, or the means of averting pain during the performance of surgical operations, and in reduction of hernia, fractures, and dislocations. Such an arrangement is suggested not less by common sense than by sound experience; for it is just as necessary in surgery to pass from the known to the unknown, or from the more simple to the more complex portion of the various topics which fall within its province, as it is in the study of mathematics, or any other abstruse science."
>
> "The above subjects being disposed of, we shall come to that of SPECIAL SURGERY, embracing an account of the various surgical diseases, injuries, and malformations of particular organs, tissues, and regions of the body. The general principles, or great doctrines of surgery being understood, a knowledge of the various topics discussed in this part of the work will be a comparatively easy task."

The commencing chapter on irritation, sympathy, and idiosyncrasy, is interesting and suggestive. It must prove particularly useful to beginners, for whose benefit we hope to see it considerably extended in the next edition. The two chapters, which, with a short one on congestion, follow next, are long and full of interesting matter. Although peculiar, on certain points of doctrine, they are generally well arranged, clear, and to the purpose; and present an instructive, fair, and practical view of the present state of all that is really essential in our knowledge of inflammation and its results. We are glad to find this very important portion of a systematic treatise as well brought up and as free from special views and speculations as could be expected in an exposition of the kind. The sections on the treatment of inflammation and of its results, may be recommended as especially reliable, whatever may be thought of the occasional abstractions and old-fashioned pathological views in the doctrinal discussion of the subject.

We had marked many passages in these chapters, as elsewhere in the volumes, for inquiry or approval, but prefer to quote an extract, as of more use than critical discussion, since it affords some idea of our author's style, and his mode of reasoning on a knotty and hackneyed subject.

"Much discrepancy exists among writers and teachers in regard to what constitutes inflammation; some, among whom I include myself, believing that but a slight degree of action is necessary, while others maintain that the departure from the healthy standard must be very great. Thus Dr. Miller, Professor of Surgery in the University of Edinburgh, declares that true inflammation. properly so called, is always attended with suppuration: apparently forgetting that thousands of human beings daily die from this affection long before it has attained this crisis. Dr. John H. Bennet, another eminent Scotch professor, makes fibrinous exudation the indispensable condition of the process, and he goes so far even as to propose the word exudation as a substitute for that of inflammation."

Objecting to the term as ill-chosen, because likely to confuse the student's mind with an erroneous idea, he continues—

"Dr. Bennet, and those who think and reason with him on the subject, must be aware that there are inflammations of certain organs and tissues in which the morbid action is so great as to destroy life, and yet the most careful examination, microscopical and chemical, fails to detect the existence of fibrin in the affected structure. It is only necessary to instance the arachnoid membrane, the aponeuroses, cartilages, and nerves, in which this disease is often, if not generally, unattended by a deposition of fibrin. But while it is certain that inflammation is frequently present, and that, too, to a serious extent, without fibrinous exudation, it is equally true that this substance is usually poured out in this disease, especially if it has already made considerable progress. Much will necessarily depend upon the nature of the affected organs and tissues, some furnishing plasma much more readily and in greater quantity than others. Moreover it requires very nice judgment, particularly in the living subject, to define the boundaries between congestion and inflammation, or to determine where the one terminates and the other begins. Inflammation, in its inceptive stages, may be compared to a latent or smothered fire kept in abeyance by a redundancy of surrounding material interfering with its development; exudation cannot occur all at once; some time is necessary to prepare the vessels for their new office: so it is with the flame in the furnace; it does not break forth immediately on the application of the kindling, and yet no one would say that fire was not actually present. Most of the disputes that have grown out of this question have arisen from a misunderstanding on the part of observers as to the amount of disease, or change in the affected part, necessary to constitute inflammation; and it is obvious that there never can be any fixed or settled views upon the subject so long as this is the case; nor can the question be satisfactorily disposed of, unless it be studied with reference to the nature and functions of the different organs and tissues of the body; or, if I may use the expression, the conduct and habits of the organs and tissues in their healthy and morbid relations."—pp. 96, 97, vol. i.

Passing over the remarks on textural changes and congenital malformations, we come to Chapter VII., of sixty-six pages, on tumours or morbid growths. This difficult subject is well managed so far as the detailed accounts of special tumours are concerned, these being carefully described and very well illustrated. The directions as to treatment are judicious and valuable, including, among other precepts, a caution against the free use of the exploring needle in the diagnosis of suspicious growths. Dr. Gross objects to this mode of exploration, as liable to arouse injurious irritation without affording a compensating amount of information as to the nature of the tumour thus explored. His views in regard to extirpation are already well known. His "conviction is, that interference with the knife," in carcinomatous disease, "is, as a general rule, only productive of harm, and that the patient will live quite as long without as with it, and, on the whole, in a state of greater comfort." Seven "general rules for conducting excision of malignant diseases," and seven others in which are described "the contra-indications to surgical interference," afford invaluable assistance to the doubting operator, and may be consulted with advantage by surgeons generally. The classification of these tumours under the uncertain heads of benign and malignant, is not so happy; nor are the general descriptions of these two arbitrary divisions more satisfactory. Our author seems to have much more faith in the old-fashioned distinctive signs of cancer than in the microscopic means of diagnosis. He regards this instrument as "often a valuable auxiliary, but nothing more."

> "The practical surgeon," he continues, "must indeed be dull who cannot, as a general rule, determine the character of a morbid growth before he attempts its removal. The merest tyro in the profession has no difficulty in discriminating between a gelatinoid and a fibrous polyp of the nose, a scirrhous and an encephaloid tumour of the breast, or a common hypertrophied ganglion of the neck and a malignant growth of the same part. Every new growth, whether benign or malignant, has its peculiar features, not less than every pre-existing one. I believe that, with proper care, and a reasonable knowledge of the morbid structure, such as every cultivated surgeon ought to possess, it is, in general, as easy to determine the difference between a malignant and a non-malignant tumour as it is to determine the difference between a muscle and a tendon."
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> He does not wish to "underrate microscopical researches; on the contrary, I only wish to state that they have not, in my judgment, effected all the good that has been claimed for them, especially in this particular department of pathology and practice, and that therefore their results should be received with some degree of allowance. In fact the whole subject of morbid growths, benign and malignant, should be revised and re-examined. When there is so much dispute as there confessedly is at present, respecting the real nature of the cancer-cell, or whether indeed there is such a cell at all, it well becomes the practitioner to look with distrust upon many of the alleged discoveries of the microscope. Besides, he should not lose sight of the value of his unassisted senses, nor cease to cultivate them in the highest possible degree."—p. 325, vol. i.

Whether this rather contradictory caveat amounts to a disparagement, we leave the advocates of the microscopic tests to judge. The two lessons to be learned from it, as to the importance of studying closely the ordinary unmagnified external and internal appearances, and in regard to the revision and re-examination "of the whole subject of morbid growths," will not be lost, we trust, upon the reader, however much they may lessen his faith in the present teaching of the author. The whole subject, certainly, might receive more light from existing authorities on both sides of the Atlantic than appears to be vouchsafed to it in the sweeping and rather confident, although really discouraging remarks just quoted.

There are some singular ideas expressed in the next chapter (on scrofula) in regard to the nature of "tubercular matter." This he has "investigated too often, and under too many circumstances, not to be convinced that it is susceptible of organization, although certainly in a less degree than scirrhus and encephaloid." The reasons for adhering to this exploded notion are given at length, but need not be quoted here, as they are well known to the readers of other works of Dr. Gross.

The chapter (IX.) on wounds, and that (X.) on the effects of injuries upon the system, may be studied with profit by every surgeon; while they are minute and sound enough in precept and practice, to serve as efficient guides to the most unsophisticated student. They are eminently practical and philosophical; which is the highest praise that we can award to any portion of the book.

The chapter (XI.) on syphilis presents a good summary of the facts, doctrines, and principles of treatment of this malady, in which, as usual, he expresses decided views in regard to many mooted points, and gives much excellent advice. An instructive chapter on general diagnosis follows, containing much useful matter in the course of 130 pages, in which is included a good, although brief, account of the microscope and its employment in the study of surgical disease.

The chapter on minor surgery, which comes next, does not strike us as full enough, especially in the section on bandaging. This is very meagre, and, although more susceptible of explanation by diagrams, than most subjects, it is scantily illustrated by three veteran figures, the first of which is badly chosen, and the third is an ancient exaggeration, which has done service as a scarecrow in so many places that it has almost ceased to afford the necessary warning.

In this chapter the merit of introducing the employment of metallic sutures, as substitutes for those of vegetable or animal fibre, is justly awarded to Dr. Sims. We regret, however, that the experience of the author with them is so limited, and that instead of yielding to the influence of prejudice he did not satisfy himself more fully on the subject. We do not believe in the peculiar virtue of silver wire, but we have no doubt of the superiority for suture purposes, of lead and annealed iron wire, as well as the more expensive gold and silver, over the silk or flax.

The five chapters, on operative surgery, plastic surgery, subcutaneous surgery, amputations, excisions of the bones and joints, and anæsthetics, which complete part first, are, generally, well brought up, and contain many valuable practical hints. That on anæsthetics is a good one, in which due honour is done to the claim of the unfortunate Wells, who was undoubtedly forestalled by his more alert pupil, Morton, in winning the first fruits of the renowned letheon discovery. Dr. Gross prefers chloroform to ether, and quotes his successful experience of ten years' duration, as well as that of the European hospitals, in its favour. He is less happy in his employment of freezing mixtures, and does not appear to have tried them in the cases of whitlow, carbuncle, and other more accessible diseases to which they are so much more applicable than to those of the mammary gland.

Part Second commences with a generally judicious chapter on erysipelas, furuncle, anthrax, bed-sores, burns, frost-bites, morbid growths, and other diseases and injuries of the skin and cellulo-adipose tissue, which, although not particularly full, appears to be sufficiently so for ordinary practical purposes.

Passing over the chapter (II.) on diseases and injuries of the muscles, tendons, burses, and aponeuroses, we stop only to remark that we know of no such parts as "burses," and that the plural terminations of the words bursa and aponeurosis cannot be made the same without an error, which is only confusing to the student who may not be aware of our author's peculiarity on the subject.

The next chapter (V.), on diseases and injuries of the arteries, is free from this infirmity, and may be regarded as one of the best of the whole work. It is admirably illustrated, and so rich in most respects that it is well worth the cost of the volume to the distant practitioner. We would gladly dwell on many points which have attracted our attention, were we not obliged to curtail the remainder of this notice, in view of a whole volume yet untouched.

The chapter (VIII.) which succeeds, on diseases and injuries of the joints, is not so satisfactory, except, perhaps, in treating of dislocations; although on this subject also, we should like to have seen more upon the manipulating methods of reduction, as applied to other dislocations, beside those of Reid and Crosby for the thigh and the thumb. Some generalization on this interesting subject might have been dwelt upon with great advantage. The section on tuberculosis of the joints, and especially on hip-joint disease, is prolix and comparatively long on coxalgia, but, in several respects, and particularly as to the treatment, it does not accord with our ideas of what is due to these grave affections.

But we must hasten on to Volume II., which begins with diseases and injuries of the bones and their appendages. These most important subjects receive a tolerably due share of attention, and, in the section devoted to the diseases of this tissue, are beautifully illustrated.

Fractures are systematically and generally well discussed, in accordance with prevalent views and recent experience. A hospital surgeon may notice some want of precision and minuteness of detail in the directions for the management of some of the special fractures; but, in the main, all the advice and assistance, if not somewhat more, is given that the young surgeon would be likely to find in many of the text-books. We would counsel him, however, to trust to none of these too often halting guides, but to provide himself with such monographs upon the subject as the work of Malgaigne, recently translated, those of Astley Cooper, of R. Smith, of Lonsdale, or even the older ones of Boyer and Desault.

In most respects, however, his teaching is fully up with the times. The immovable apparatus, of which he prefers the form of starch bandage, receives a sufficient share of attention; and the use of adhesive strips, both for retaining purposes and for those of extension and counter-extension, is honourably noticed. Dr. Gross gives the credit of this valuable improvement to his former preceptor, Dr. Joseph R. Swift, of Easton, and claims to have been the first to call attention to the subject in his *Treatise on the Diseases of the Bones and Joints*, published in Philadelphia so long ago as 1830. We believe that Dr. Crosby, of New Hampshire, is another claimant for priority in this matter. Like many other good things in practice, it appears to have remained unnoticed in the hands of a very few practitioners, until Dr. E. Wallace secured its adoption in the wards of the Pennsylvania Hospital, some fifteen or sixteen years ago, by contriving the extending band, which is now the established favourite in the management of oblique fractures of the femur. The employment of the adhesive plaster for similar purposes in other fractures, and for counter-extension, gradually took place as a natural consequence; but we suspect that the earliest general attention to the value of the expedient for extending purposes is chiefly due to the works on *Minor Surgery* of Dr. Sargent and Dr. H. H. Smith, the former of whom was the first to recommend it as introduced by Dr. Wallace.

Dr. Gross discards the use of the term compound fracture, and treats of fractures under the two heads of simple and complicated only, preferring to regard what everybody understands by compound fracture as one of the forms of complication merely. We do not see that anything is gained by this innovation, which is not counterbalanced by the confusion inevitably created by the arbitrary substitution of a new and not more explicit adjective for a long established old one. It matters little, except under conventional rules which custom only can control, whether we call fractures with wounds extending to the surface, compound or complicated, if, in describing them as either, we have to state the nature and extent of the special complication.

Some wise cautions are given as to the application of the bandage in the treatment of fractures. The danger is so great of undue or irregular compression of the limb, and of injurious disturbance of the fragments, especially by awkward hands, in the employment of this part of the dressing, as recommended by our author, that we are surprised at his urging it, in all fractures, under the retaining apparatus. We are satisfied that, except in occasional cases, it is better practice to omit the under bandage altogether. This was the conclusion long ago arrived at in our part of the country, as the result of a very large hospital experience among dressers of undoubted skill and judgment; and for the same reasons will prove, with easily recognized exceptions, much the safer policy for less expert practitioners in private practice. We believe that even the many tailed bandage of Scultetus, as too often applied, is rarely more than an unnecessary aggravation of the patient's sufferings, and may thus become a snare to his attendant.

Dr. Gross prefers, in the treatment of transverse fracture of the patella, a tin case like the old gutter of Boyer, which is a needless complication. Nothing answers better than the simple well padded straight wooden splint of Dorsey, such as could be prepared at once in any private house, with notches or transverse cleets for the attachment of the oblique bandages, or adhesive strips; and these should pass, not around the joint in the old way, but along the sides of the limb only, so as to avoid the injurious constriction of the circular strips and of the figure of 8 bandage.

A cut and description are given of what is called the "mode of dressing pursued by Professor Hamilton, and also with slight modifications, by Dr. Neill and his colleagues, at the Pennsylvania Hospital." We do not think that the learner will be able to profit much by the explanation given, or that Dr. Neill and his colleagues will agree to be quoted as pursuing, with slight modification, the plan represented. Dr. Neill's method, as we understand it, requires the application of the strips directly to the skin above and below the separated fragments, without the intervention of a compress which is only in the way, and attaches these strips obliquely to the margin and under surface of the splint above and below the joint, so as to draw upon the fragments in opposite directions, holding the lower fragment in its proper place and drawing down the upper into apposition with the lower. In this method the pressure is applied only to the fragments and immediately adjacent soft parts, care being taken to obviate the tilting of the fragments which may otherwise prevent the approximation of the fractured surfaces; and the whole is left as much uncovered, during the early part of the treatment, as the retaining bands will allow. The mode of using the strips under the bandage, in his plan, is not clearly described by Dr. Gross, but would seem to be a good one; the upper fragment being apparently drawn down and retained by a series of long strips passing diagonally along the sides of the joint, and then retained by vertical and transverse strips encircling the limb below the joint. An outline sketch of the ingenious and effective dressing of Prof. Crosby, in which the Spanish windlass principle is adjusted to an arrangement of longitudinal strips, would, we think, have been more useful and made a better show in the margin than the rather clumsy looking picture which he has chosen as the type of the class. In this the strained position of the foot would be intolerable to the patient, and might mislead the student into the idea that there were some extensor muscles to be relaxed in front of the leg as well as of the thigh.

We have dwelt rather long upon these small matters in connection with one very troublesome form of fracture, more because we are thus enabled to give some idea of what we miss, in this chapter, of the attention to minor details, which is so desirable to inexperienced practitioners. The treatment of fractures is made up of little things; and it is in the knowledge of these that the accomplished surgeon will ever show a superiority which all can more or less appreciate in its immediate result, even more clearly than in the final one. It must be especially tantalizing, for instance, to the anxious inquirer for assistance in arranging a dressing of adhesive strips for fractured clavicle, to find the only answer given in the remark that "when this dressing, which is more easily applied than described, is carefully put on, it answers the object much better than any of the numerous contrivances that have ever been invented for the cure of this fracture." He might just as well have said, what is equally true and so much more consoling, that rest in position on the back, without other adjuvant than a well-stuffed level pillow under the whole chest, answers better still.

The section on fractures terminates with a very interesting and carefully prepared account, under all the usual heads, of fracture of the femur; in which, perhaps, the least satisfactory part is that which relates to the treatment. In speaking of fracture beds, we regret that he did not give us a view of a serviceable fracture bed, such as the ingenious forms alluded to of Coates or Hewson, or, what is more generally available, the simple frame and perforated mattress and sacking-bottom, instead of the obsolete and cumbrous machine of Jenks. We regret, too, that, in addition to a contrivance of his own, which has some unnecessary complications, he did not exhibit the simpler apparatus of Desault and Physick, which, notwithstanding his unfortunate experience in managing it, has done so well in hundreds of cases for half a century. His crutch-headed fracture box is not equal to the long and short splints with cross-piece, foot-board and perineal cushion, of Hartshorne's apparatus, of which it is a modification, or to the apparatus of Flagg, another modification, which has long been used in Boston and New York. Nor is it equal to the admirably simple long splint, with cross-piece and perineal adhesive strips, of Gilbert, or to the splint of Liston modified by Haynes Walton. In no form of fracture is that "simplicity which is the measure of perfection," more attainable or desirable, in the mechanical treatment, than in this of fractured femur, whether in the shaft or about the joints. The very best materials for the purpose are the strong linen sheets, the unbleached muslin bandages, the rolls of carded cotton, the cushions of bran, the pillows, and the splints of wood, bark, binder's board, or sole leather, with the shoemaker's wax, if not sticking plaster, which are within everybody's reach in town or country; and this is the machinery which the student should be taught by diagrams and explanations, however copious, to mould and shape and combine for his own purposes in every emergency, and for all kinds of fractures, without the aid of tinman or joiner.

It is unnecessary to devote more space to the examination of the remainder of the second volume. We may say, in general, that the various topics are mostly well treated, some of them admirably so; and that a few of the sections fall short of the author's aim in providing all that could be desired in "a reliable guide."

Viewing the production, as a whole, we do not consider it by any means the "compilation," which some readers may expect to find, in a comprehensive treatise on an important branch of the healing art. The numerous cases in illustration of theory and practice, the frequent allusions to decided personal experience, the whole tone and spirit of the work, in short, forbid the idea of mere book-making, however much it may be suggested by certain chapters. Indeed, so far as the history, and especially the recent American history, of improvement in surgery is concerned, we should have preferred somewhat more of faithful compilation than has actually been given. We think that the author's countrymen might have been more accurately represented, in several instances, and that in his references to European progress, he is not always free from error.

A few words, before we close, in relation to the purely literary character of the work. Some peculiarities of style have already been alluded to as occurring to an unfortunate extent, in spite of much really good writing and some general excellencies. We should be glad to avoid all comment upon these matters, if we could be allowed to regard an *ex-cathedra* text-book of the classical pretensions of this one of Professor Gross as amenable to criticism only in its scientific aspect.

The importance of a certain measure of purity, if not elegance of style, and of correctness and perspicuity of diction, in a didactic work which is destined to be more or less resorted to by thousands of readers, is too obvious to be insisted on. Terseness, too, and simplicity, no less than freedom from rhetorical flourish, are indispensable characteristics of a truly scientific treatise. We greatly regret, therefore, to have to notice in the language and phraseology of Dr. Gross, frequent evidence of hasty composition, in looseness of expression and confusion of terms, as well as a verbal pedantry, which seriously impair the claim of the work to be regarded as a representative one abroad or a model one at home.

Nor do we think that any force is added to the opposition of the author to instruments, apparatus, or modes of treatment, by the bestowal on them of such epithets, whether just or not, as "villainous," "abominable," "filthy," which are met with in his pages. Another fault, is the affectation of such barbarisms as "fistule," "burse," "polyp," and some other absurdities of word-coining, for which there is no excuse under any circumstances, and in the present case a double accountability which renders them especially improper. Such words are not English, and we do not choose to encourage our author in the vain idea that they have become American.

These are blemishes, however, which are easily removed; the work is so superior to its predecessors in matter and extent, as well as in illustrations and style of publication, that we can honestly recommend it as the best book of the kind to be taken home by the young practitioner. Meanwhile our earnest hope is that a new edition may very soon appear in the proper dress which its accomplished author can so readily afford to it, not only for his own sake, but for that of the American profession, of which he is a prominent surgical leader. *

Art. XXI.—*A History of the Discovery of the Circulation of the Blood.* By P. Flourens; Perpetual Secretary of the Academy of Sciences (Institute of France); Member of the Royal Societies and Academies of Science of London, Edinburgh, Stockholm, Munich, Turin, Madrid, Brussels, etc. Professor at the Museum of Natural History at Paris. Translated from the French by J. C. Reeve, M. D. Cincinnati: Rickey, Mallory and Company, 1859. 12mo. pp. 178.

It is well known that all great discoveries are made but slowly. No one, indeed, can study the rise and progress of any of the inductive sciences without being struck with the fact that such discoveries are not sudden additions to the common stock of knowledge made by a single observer, but are, in reality, the slowly matured results of the patient labours of many individuals who have toiled diligently at different epochs of time, perhaps, and in different countries. Years of patient drudgery are required for the discovery of facts. These facts are recorded and oftentimes forgotten, to be rediscovered and again recorded as new. For a long time their true value and relations are not perceived. They are looked upon as isolated details having no necessary connection. From time to time, however, as the details become more and more numerous, attempts are made to classify and reduce them to some definite order. Such attempts gradually prepare the way for the recognition of the great discovery which is to coordinate these details and to stamp them with their exact value. As the fulness of time approaches, and men begin to attach a deeper significance to the slowly accumulating facts, it often happens that different individuals in various parts of the world, are, unknown to each other, working out the same idea, or hopefully pursuing the same line of inquiry. Occasionally they catch rude and uncertain glimpses of the truth which is afterwards to startle the world, but the data for the generalization towards which they are tending not being complete, they never comprehend that truth, their eyes are not blessed with beholding the discovery. At length the discoverer appears; the man who, with comprehensive mind, grasps the details worked out by his predecessors, supplies by his own investigations the deficient data, and rising above the facts, seizes, as if suddenly and by inspiration, the great truth for which the world was waiting. Thus the discoverer stamps with the seal of his own name the labors of all those who preceded him in the particular field of his research.

Such is the history of the discovery of the law of gravitation; such the history of the discovery of the cell doctrine—the fundamental theory of statical physiology; and such the history of the discovery of the circulation of the blood—a discovery which marks a new era in the science of physiology, and therefore in that of medicine. This discovery was not a sudden performance effected without preparation by a solitary observer, in a happy moment of inspiration, but the gradual, and we may say, anticipated result of the patient and long-continued observations, the judicious experiments and careful generalizations of many thinkers and observers.

The inception of a great discovery is generally preceded by the exposure and overthrow of prevalent and more or less firmly established errors. This was especially the case with the discovery of the circulation. According to our author, three principal errors masked the important fact of the circulation of the blood. The first was that the arteries contained air only; the second, that the septum between the two ventricles of the heart was perforated; and the third, that the veins carried the blood to the extremities instead of bringing it from them to the heart.

A moment's reflection will show that the discovery of the circulation was an impossibility so long as such erroneous notions were maintained by anatomists and physiologists. To Galen belongs the lasting honor of demonstrating that the arteries contain blood and not air. Vesalius, the father of modern anatomy, overthrew the notion of a perforated ventricular septum. Servetus showed that the veins carried blood to the heart, and not away from that organ. These three illustrious observers are justly to be regarded, therefore, as the pioneers of the important discovery under consideration.

Erasistratus maintained that the arteries are filled with air. He taught that air entered the lungs by the trachea; from the trachea it passed into the pulmonary vein, thence into the left ventricle and the arteries, and by the latter was distributed to the system. As long as the teachings of this ancient philosopher were implicitly accredited, as long as one part of the vascular apparatus was regarded as a channel for air, and another part a channel for blood, the conception of the true idea of the circulation was an impossibility.

Galen observing that blood always escapes, when an artery is opened, concluded that the blood was either contained in the artery, or flowed into it from some other part of the body. He thought that the latter supposition could not be true, for if the artery contained nothing but air, the air should escape before the blood. This he saw was not the case. He noticed that blood alone issued from a punctured artery. He ligated an artery in two places, and opening the vessel between the ligatures, found nothing but blood therein. Thus, by observation, experiment, and reflection of the simplest character, Galen overturned the first of the three ancient hypotheses which for so long a time had interfered with the discovery of the circulation.

> "Thus then," writes Flourens, "it was established that the arteries do not contain air: they contain only blood like the veins; an entire half of the sanguineous system, which had been detached by an hypothesis, was given back to it again; and, as the circulation is but the unceasing movement of the blood from the heart into the arteries, and from the arteries into the veins, and through the veins back again to the heart, so long as the arteries were supposed to contain nothing but air the discovery of the circulation was impossible; without the first step which Galen made, it was impossible to make a second.
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> "Of the three principal errors, then, first mentioned, there was one less; one was destroyed. But Galen was not so happy with the two others. He still believed that the septum between the two ventricles was perforated, and that the veins carried the blood to the extremities; two errors which were destined to pass from him to the moderns, and the latter of which is opposed to the very idea of the circulation."

As the result of his own observations and experiments, Galen believed and taught that there were two kinds of blood—the *spiritual* or arterial blood contained in the arteries and left ventricle, and the *venous* blood filling the veins and right side of the heart. The spiritual blood, he thought, nourished organs of light and delicate texture, such as the lungs; the venous blood nourished those heavy and gross, such as the liver. The nutritive power of the venous blood was derived from the *spirit* mixed with it, and this spirit, the purest part of the blood, was generated, according to Galen, in the left ventricle. Entertaining such views, and believing, moreover, that in both the veins and arteries the stream of blood flowed away from the heart to the extremities, Galen was forced very naturally to adopt the erroneous notion of a perforated ventricular septum. For by this hypothesis only could he account for the mixture of the *spirit* contained in the left ventricle, with the venous blood filling the right. Galen, therefore, held the septum to be perforated because he had imagined a system which rendered a communication between the ventricles necessary. Mondini, Vasseus or Le Vasseur, and many others of the early modern anatomists, blindly adopted the opinion of Galen. At length, in 1521, Berenger de Carpi doubted, and, in 1555, Vesalius finally denied, positively, the existence of interventricular openings, and thus removed the second great error which opposed the discovery of the circulation. At this juncture appeared Michael Servetus, the discoverer of the pulmonary or lesser circulation, and the victim of Calvanistic bigotry and fury. At his advent it was generally known that the arteries as well as the veins are filled with blood, that these two sets of vessels contained different kinds of blood, and that the partition between the ventricles was not perforated. All this was essentially preparatory to the discovery of the pulmonary circulation. It was still believed, however, that the veins, like the arteries, conveyed blood from the heart. This remaining error had yet to be overthrown. For its overthrow we are indebted to Servetus, who, though at first educated as a physician, afterwards became a divine, and wrote a work entitled *The Restitution of Christianity*, a most remarkable compound of theology, metaphysics, and physiology. A copy of this extraordinary volume, the only copy perhaps in existence, is contained in the library of the French Institute. Curiously enough it is the very copy which once belonged to Colladon, one of the accusers raised up by the pitiless Calvin against the unfortunate Servetus. The passages upon which are based the accusations against Servetus are underscored in this copy by Colladon himself. A frightful souvenir, as Flourens calls it, of this unlucky volume is the scorched and blackened appearance exhibited by several of the pages. It appears to have been saved from the pile where author and work were burnt together, only after the conflagration had commenced.[1] In this theologico-physiological treatise occurs that remarkable paragraph concerning the pulmonary circulation which has given rise to so much discussion, and which, more than anything else, more than his sad fate even, has preserved his name from oblivion.

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[1] A reprint of the *Christianismi Restitutio* appeared in 1790, in which the first edition is reproduced as far as the 734th page. A copy of this work was bequeathed by a Dr. Sims to Dr. George Sigmond, author of a work entitled *Unnoticed Theories of Servetus*. To that copy the following note was prefixed: "The fate of this work has been not a little singular. All the copies except one were burned along with their author, by the implacable Calvin. This copy was secreted and saved by D. Colladon, one of the judges. After passing through the library of the Landgrave of Hesse Cassel it came into the hands of the celebrated Dr. Mead, of London, who endeavoured to publish a quarto edition of it; but before this edition was nearly completed, it was seized on the 27th of May, 1723, at the instance of Dr. Gibson, Bishop of London, and burned—a very few copies excepted. The late Duke de Valliere gave near 400 guineas for this copy; and at his sale it brought 3810 livres." According to Flourens, Mead gave it to Boza, and subsequently it was purchased for the Royal Library at Paris, for a very high price. (See an interesting brochure entitled, *Calvin and Servetus: the Reformers' share in the Trial of Michael Servetus Historically Ascertained*, translated from the French of A. Rilliet, by the Rev. W. K. Tweedie, Edinburgh and London, 1846, p. 68.)

> "This communication," writes Servetus (*i. e.* the passage of the blood from the right to the left ventricle), "takes place not by the middle septum of the heart, as is generally believed, but by a remarkable artifice; the subtle blood of the right side of the heart is agitated in a lengthened course through the lungs, whereby it is elaborated, from which it is thrown of a crimson colour, and from the vena arteriosa (pulmonary artery) is transfused into the arteria venosa (pulmonary veins); it is then mixed in the arteria venosa itself with the inspired air, and by the act of expiration is purified from fuliginous vapors, when, having become the fit recipient of the vital spirit, it is at length attracted by the diastole."[1]

From passages in the writings of Galen[2] and Vesalius,[3] we may conclude that both these illustrious men had some vague idea of the fact that the blood of the right ventricle passed, at least in part, through the pulmonary artery into the lungs. But, as Flourens very justly observes—

> "This was only the half of the truth. The entire and complete idea necessary to establish the pulmonary circulation was to understand that the blood passed from the *pulmonary artery* into the *pulmonary veins;* that the blood leaving the right heart by the pulmonary artery, returned to the left heart by the pulmonary veins; that the blood left the heart and returned to the heart; that there was, consequently, a *circuit, circulation;* and this idea of the circulation, so grand and so new, was first formed by Servetus."
>
> "Now," continues Servetus, "that the communication and preparation take place as stated through the lungs, is proclaimed by the various conjunctions and communications of the arterial vein with the venous artery. The remarkable size of the arterial vein (pulmonary artery) confirms this, a vessel which could neither have its actual constitution nor dimensions, nor transmit such a quantity of the purest blood direct from the heart itself for the mere nourishment of the lungs. Neither would the heart supply the lungs in such proportion (especially when we see the lungs in the embryo nourished from another source), by reason of those membranes or valves which remain unopened until the hour of birth, as Galen teaches. The blood, consequently from the moment of birth, is sent, and in such quantity is sent, for another purpose from the heart into the lungs; from the lungs also it is not simple air that is sent to the heart, but air mixed with blood is transmitted through the arteria venosa (pulmonary vein). In the lungs consequently does the mixture take place. The crimson colour is imparted to the spirituous blood by the lungs, not by the heart. There is not room enough in the left ventricle of the heart for so important and so great an admixture; neither is there space there for the elaboration into the crimson colour. Finally, the septum medium, seeing that it is without vessels and properties, is not adapted to accomplish that communication and elaboration, although something may transude through it."
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> "All this," observes Flourens, "is full of sagacity, acuteness, and penetration. The connection or union of the pulmonary artery with the pulmonary vein in the lungs by an infinite number of branches; the calibre of the pulmonary artery, which would be much too large if it served only for the nutrition of the lungs; the nutrition of this organ in the embryo without the blood of the pulmonary artery, which, indeed, does not then transmit any; all these are most excellent and decisive reasons—the same which we now give—the true ones."

To Servetus belongs another honour. He not only discovered the true route of the blood from one side of the heart to the other through the lungs, but he also discovered the true place of *sanguification*, of the *transformation* of the blood, of its change from black blood to red. Galen placed the seat of sanguification in the liver; Servetus first located it in the lungs; a truth which was not then remarked, which was not comprehended until long afterwards, and which, indeed, did not receive its full development until very recent times by the experiments of Goodwyn and Bichat.

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[1] Christianismi Restitutio. Viennæ Allobrogum, 1553.
[2] De Hippocratis et Platonis decret., vi. 264.
[3] Opera Omnia Anat., 1725, i. 517.

> "The passage of the blood from one ventricle into the other," continues Servetus, "is not through the septum. In the same manner that the blood of the *vena porta* passes into the *vena cava* through the liver, so the blood of the arterial vein passes into the venous artery through the lungs." A nearer approach to the truth could not have been made without finding it. Finally, said Servetus, in closing, and he could safely say it, "if any one will compare these things with what Galen has written in the sixth and seventh books of his work, *De Usu Partium*, he will see clearly the truth which Galen did not perceive."

Six years later, Realdo Columbus, whom Flourens regards as one of the best of the early Paduan anatomists, discovered again and independently the pulmonary circulation. He appears to have been unacquainted with the labours of Servetus, yet we find in his work, *De Re Anatomica*, published in 1559, the following remarkable passage:—

> "Between the two ventricles is the septum through which it is believed the blood passes from the right to the left; but this is a great mistake, for the blood is carried by the arterial vein into the lungs, thence it passes with the air by the venous artery into the left ventricle of the heart."

He reasons upon the valves of the heart in very much the same manner as did Harvey, nearly seventy years afterwards. The blood, he says, when it has once entered the right ventricle from the vena cava, can in no way get back again; for the tricuspid valves are so placed that, whilst they give a ready passage to the stream inwards, they effectually oppose its return. The blood continues to advance from the right ventricle into the vena arteriosa or pulmonary artery; once there it cannot flow back upon the ventricle, for it is opposed by the sigmoid valves situate at the root of the vessel. The blood, therefore, agitated and mixed with the air in the lungs, and, having thus in some sort acquired the nature of spirit, is carried by the arteria venosa or pulmonary vein into the left ventricle, whence, being received into the aorta, it is, by the ramifications of this vessel, transmitted to all parts of the body.

Notwithstanding the accuracy of the above language concerning the course of the blood, we have only to turn to other portions of his writings to learn that Columbus could never have entertained the true Harveian notion of the circulation. He denies the muscular character of the heart, and thinks, with Galen, that all the veins of the body originate in the liver; that the portal vein arises by innumerable roots from the concavity of the liver; and that the vena cava and its branches originate from the convexity of this organ, and carry the blood that is requisite to nourish and maintain every part of the body.

Next in the chronological order comes Andreas Cæsalpinus, of Arezzo, who, without referring to Columbus, also describes the pulmonary or lesser circulation in the subjoined words:—

> "This circulation which carries the blood from the right heart through the lung into the left corresponds perfectly with the disposition of the parts. For each ventricle has two vessels, one by which the blood arrives, and the other by

which it departs. The vessel by which the blood arrives at the right ventricle is the vena cava, that by which it leaves is the pulmonary artery. The vessels which pour the blood into the left ventricle are the pulmonary veins, the vessel which affords its exit is the aorta."[1]

Cæsalpinus appears to have been the first to use the word *circulation;* and the language which he employs in several parts of his work, indicates some knowledge of the general or systemic, as well as the lesser or pulmonic circulation.

> "He was the first," according to Flourens, "and the only one before Harvey, who called attention to the swelling of the veins which takes place *below* and never *above* the ligature. It is a very curious thing, he observes, that the veins become distended below the ligature and not above it. Those who bleed patients, he adds, are familiar with the fact; they always place the ligature *above* the place of puncture and not *below* it: *quaia tument venæ ultrâ vinculum non citrâ;* which should be just the contrary if the movement of the blood was from the heart towards the external parts of the body."

In another place he says :—

> "The blood conducted to the heart by the veins, receives there its perfection, and this perfection acquired, it is carried by the arteries to all parts of the body."

Flourens observes that a better conception of the general circulation could not be found, nor a better definition be given in as short a sentence.

We are constrained to differ from the critical estimate which M. Flourens is disposed to place upon the views of Cæsalpinus concerning the circulation. This celebrated peripatetic philosopher appears to have had no conception of the heart as the efficient cause of any motion which the blood might have; he was ignorant of the existence of the valves of the veins; in different parts of his work he still speaks of the permeation of the septum ventriculorum by the blood; and he says that the swelling which takes place in the veins of an extremity beyond a ligature is due to the effort made by the blood to get back to the focus or centre, lest, through the compression of the veins, it should be cut off and suffocated. He speaks, it is true, of the intercommunication of the minute arteries and veins, but adds that it is only during sleep that the blood passes from the former into the latter class of vessels; for it is during sleep, he thinks, that the veins become distended, whilst the pulsations of the arteries are then moderated. As has been observed by Dr. Willis, the translator of Harvey's works,

> "He plainly sees no connection between a delivery by the artery and a filling by the vein. It is along with all this, and as if to settle the question of the kind of knowledge Cæsalpinus had of the movement of the blood, that he uses the old word Euripus, to express his idea of its alternating or tide-like motion."

Entertaining such notions, it is evident that his conception of the circulation as a whole must have been very confused and unsatisfactory.

Cæsalpinus, however, was undoubtedly a man of broad and comprehensive views. He was in advance of his contemporaries not only in his ideas concerning the circulation, but also in his views of natural classification. He compared and classified plants, not according to their external characters, as was then the custom of botanists, but with reference to their organs of fructification, their flowers, fruits, and grains. In so doing he anticipated, to a certain extent, Cuvier's great discovery of those fundamental laws of comparative anatomy, the correlation or harmonization of organs, and the subordination of parts. It was in 1583, in his work, *De Plantis*, that Cæsalpinus announced his new method of classification based upon organism. More than two hundred years later Cuvier carried this methodological principle into the Règne Animal, and used it in the most masterly manner in his unwearied attempts at the exact classification of animals. We are indebted to Flourens for an admirable "*History of Cuvier and his Scientific Labours*." In that work he dwells with enthusiasm upon the extensive and philosophical use which Cuvier made of the above mentioned laws of organization. He speaks of the application of these laws by Bernard and Jussieu in the vegetable kingdom, but, unaccountably enough, makes no allusion to the early and sagacious recognition of these laws by Cæsalpinus.

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[1] Quæstionum Peripateticarum. Venise, 1593, v. 125.

The next step towards the establishment of a full and complete knowledge of the circulation, was the discovery of the valves of the veins, made in 1574, by Fabricius ab Acquapendente.

> "Fabricius saw well that the valves open towards the heart. They oppose, therefore, any passage of the blood from the heart to the external parts in the *veins*; it must go then from the parts towards the heart—the reverse of what takes place in the arteries, which have no valves. The valves of the veins are the anatomical proof of the circulation—the proof that it makes a circuit, that it returns upon itself, that it circulates. But Fabricius did not understand this proof; he saw the fact, but failed to draw from it that important deduction which was left for the genius of Harvey. He believed that the only use of the valves was to prevent too great an accumulation of blood in the inferior parts of the body, an occurrence which would be attended with the double inconvenience of too great a supply to the lower parts, and too small a quantity in the upper."

Gassendi, in his *Vita Peyreschii*, says that the discovery of the valves of the veins was really made by an Italian writer named Sarpi, who confided it to Fabricius. But of this statement, Flourens concludes with Tiraboschi, the historian of Italian literature, more and other proof must be furnished, before it can be considered established.

M. Portal, in his *Histoire de l'Anatomie*, says that Vasseus or Le Vasseur, a disciple of Jacques Sylvius, and the author of a small Latin abridgment of the anatomy and physiology of Galen, "knew almost as much as we do of the circulation of the blood." But a passage which Flourens quotes from his writings is sufficient to show that he knew nothing of the circulation, not even of that which goes on through the lungs.

Passing over the claims, therefore, of Sarpi, Le Vasseur, and others, we come at length to the illustrious Harvey.

> "When Harvey appeared," writes our author, "everything relative to the circulation of the blood had been indicated or suspected; nothing had been established; and this is so true, that Fabricius, who comes after Cæsalpinus, and who discovered the valves of the veins, knew nothing of the circulation. Cæsalpinus himself, who so plainly perceived the two circulations, mixed with the idea of the pulmonary circulation the error of a perforated septum. *Sanguis partim per medium septum, partim per medios pulmones* * * * * *ex dextro in sinistrum ventriculum cordis transmittitur*. Servetus said nothing of the general circulation. Columbus repeated, after Galen, the fictions of the origin of the veins in the liver, and the transmission of blood to the extremities by them."

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[1] De Venarum Ostiolis; Hieron. Fab. ab Acquapendente Opera Omnia Anatomica, 1737, p. 150.

Harvey was thoroughly acquainted with all that had been done before his time for the anatomy and physiology of the circulation. In his *Exercitatio Anatomica de motu cordis et Sanguinis*, he quotes Fabricius and Columbus. He was educated, moreover, at Padua where the state of the question was fully understood, and where everything which had been said upon the circulation was known by all. His work is indeed a masterpiece. Flourens, always positive and always enthusiastic, says, that "this little book of a hundred pages is the most beautiful volume on physiology." Harvey commenced his labours by studying the movements of the heart. He observed in the first place that the contraction of the auricles was not synchronous with, but was followed immediately by the contraction of the ventricles. He saw that the systole of the right auricle had the effect of driving the blood into the right ventricle; that the contraction of the latter forced it into the pulmonary artery which carried it into the lungs and delivered it to the pulmonary veins, whence it was poured into the left auricle. He saw, furthermore, that the contraction of the left auricle drove the blood into the corresponding ventricle; that the systole of the latter caused the blood to pass into the aorta by which it was distributed to all the arteries of the body. From the arteries he suspected that the blood must be transferred to the veins, for it could not well return upon itself. He saw, indeed, that the blood of the two venæ cavæ flowed into the right auricle every time the latter was dilated. He examined the valves of the heart and of the great vessels at its base, and saw from their position and construction that they permitted the blood to flow in one direction only. Then he examined the arteries, and observed that when an artery was opened the blood escaped in unequal jets, alternately stronger and feebler; and that the stronger jets always corresponded with the diastole of the artery and not with the systole. He concluded, therefore, that it was the impulse, the shock of the blood which distended the artery and caused it to beat. For if the artery dilated of its own inherent power it could not expel the blood with the greatest force at the moment of greatest dilatation. In this conclusion he was confirmed by a case of ossification of the femoral artery which fell under his observation. The artery pulsated below the ossified portion. Harvey next directed his attention to the veins. He examined the valves of these vessels, and drew from them the important deduction which had escaped their discoverer, his master Fabricius. He saw that they permitted the blood to flow towards the heart and in no other direction. He argued therefore that the venous blood flowed from the extremities to the heart. Finally he resorted to experiment. His experiments were few, but decisive; and in this, as Flourens justly remarks, is shown his genius.

"When a ligature is tied tightly around an extremity the blood is arrested in the veins alone, because they alone are superficial; when the ligature is tied tightly the blood is also stopped in the arteries which lie deeper. When a vein is tied the swelling takes place *below* the ligature; when an artery is tied it takes place *above*; the blood then flows in directly opposite directions in the arteries and veins; it flows from the extremities to the heart in the latter, and from the heart to the extremities in the former. When any artery whatever is opened, and the blood allowed to flow freely, all the blood of the body is lost through this opening; then all parts of the circulating system communicate with one another, heart, arteries and veins. A moment's reflection, in truth, upon the marvellous rapidity of the movement of the blood will convince one that it must necessarily be thus; for scarcely has the blood arrived at the heart when it leaves it and enters the arteries, no sooner has it entered them than it commences to pass into the veins, and from the veins it goes immediately into the heart again; this course, this continual *return*, is the circulation."

Such were the observations, such the experiments, and such the logical reasoning with which Harvey worked out the great physiological problem of the circulation of the blood. With him the doctrine of the circulation was not a sensible demonstration, but a profoundly logical inference or induction from various anatomical facts which, when rightly interpreted, showed that the passage of the blood from the arteries into the veins, and from the veins into the arteries, was a necessary movement. Harvey never beheld the passage of the blood from the arteries to the veins. He appears to have had no idea of an intermediate or capillary network. For the demonstration of such a vascular rete the microscope was necessary, and the intelligent application of this instrument, or rather of magnifying powers of the rudest description, to the study of anatomical structure, cannot, it appears, be traced further back than the time of Malpighi and Leuwenhoek. It is a curious fact that Malpighi, the demonstrator of the capillary system, was born in the very year in which Harvey's work on the heart was published. The microscopic researches of the eminent Bolognese on the blood-corpuscles, published in 1686, were among the earliest of those numerous and laborious investigations which led ultimately to the announcement by Schwann of the cell doctrine in 1838.

In the chapter devoted to "Sarpi and the Valves of the Veins," Flourens thus sums up his opinion of Harvey's claims as the discoverer of the circulation:—

> "I have already said that the discovery of the circulation of the blood does not belong to any single man. This grand discovery was only made little by little, and part by part; more than twenty anatomists took part in it.
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> "Harvey demonstrated the circulation of the blood; but he came from Padua, where Fabricius, who had discovered the valves of the veins, was his teacher; in this same University of Padua, where were formed the germs of all Harvey's ideas, Realdo Columbus, who discovered the pulmonary circulation, was but a short time before professor; and Padua is not far from Pisa, where Cæsaalpinus, by the light of genius, caught sight of the pulmonary circulation, and by a brighter flash of the same divine fire saw the general circulation.
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> "In the discovery of the circulation the point of difficulty was to unite the diverse observations successively made, or, so to speak, the different pieces into one whole; the difficulty was to comprehend the phenomena, and the whole of the mechanism united together; and it is because Harvey was the first who clearly and completely comprehended this whole that the glory has remained his."

From this language it will be seen that Flourens follows the beaten track of criticism in simply coupling the name of Harvey with the enunciation of the ultimate fact of the discovery of the circulation. Notwithstanding the preparation that had been made for this discovery, two prevalent errors still stood in the way of its complete development. These errors were rectified by Harvey. When this illustrious man took up the study of the circulation, the heart was regarded as a passive receptacle for the blood, a reservoir in which blood was generated and spirits elaborated. Harvey recognized in the heart an active propelling agent driving the blood out through the pulmonary artery and aorta. This activity he demonstrated by his experiments upon the living animal. The very first chapter in his essay is devoted to the consideration of the movements of the heart, and the title of his treatise, it will be observed, is "*Excitatio de Motu Cordis* *et Sanguinis*," not *de Motu Sanguinis et Cordis.* In regarding the heart as an agent by which the circulation of the blood is accomplished, Harvey was decidedly in advance of his contemporaries. He was ahead of them in another particular also. They believed the blood of the veins to be essentially different from that of the arteries. They could not be convinced, as Harvey was, that the two bloods were in reality one and the same, and that the difference in colour was due to changes wrought in the arterial blood as it passed through the body from the arteries into the veins. Even after Harvey had published his views we find Joannes Veslingius,[1] then professor in the University of Padua, and one of the most profound anatomists of his age, addressing two letters to him and urging among other objections to the new doctrine the notable difference between the colour of the arterial and venous blood. To Veslingius it seemed impossible that the dark-coloured fluid found in the veins could be the same as the bright scarlet blood of the arteries.

To the anatomical and physiological facts discovered by his predecessors, Harvey, as the result of his own observations, added a physiology of the cardiac movements so complete and satisfactory in all its details that it remains to this day, like the subsequent experiments of Hales upon the circulation, a model of research. In Harvey were happily combined the two elements of the great discoverer. His perceptive or observational powers were excellent, and he exhibited the generalizing or inductive faculty in its most eminent degree. A good observer, he was still a better generalizer. His mind, indeed, was remarkably assimilative and logical.

> "The facts he used were familiarly known, most of them to his predecessors for nearly a century, all of them to his teachers and immediate contemporaries; yet did no one, mastering these facts in their connection and sequence, rising superior to prejudice, groundless hypothesis, and erroneous reasoning, draw the inference that now meets the world as irresistible until the combining mind of Harvey gave it shape and utterance."

M. Flourens' *History of the Discovery of the Circulation* is a most admirably drawn and deeply interesting treatise. The style in which it is written—the *style coupé* of rhetoricians—is remarkable for its clearness and conciseness, and for its spirited and lively effect upon the mind of the reader. The facts are chosen with care and discrimination, and the different steps of the discovery are exhibited in an order at once logical and chronological. The circulation of the adult is discussed in the first chapter. The second is devoted to the fœtal circulation. The third is occupied with an account of the discovery of the lacteals, the receptaculum chyli, and the lymphatics. In the fourth chapter are considered the claims of Sarpi as the discoverer of the valves of the veins. In Chapter V. our author treats of "Servetus and the formation of the spirits." Chapters VI. and VII. contain an account of the contest between ancient and modern physiology, together with some notice of the doings of the "Faculty of Paris," and of the doings and sayings of the eccentric Guy-Patin, the French representative, *par excellence*, of the Greek and Latin epoch in medicine, or, as Flourens calls it, the erudite period of French medicine.

M. Flourens writes *con amore*, and with a degree of enthusiasm only equalled by his philosophical discrimination. He causes facts and their observers, discoveries and their discoverers, to pass before us as in a moving panorama. His critical estimate of these, though not invariably correct, is in the main just and to the point. Though we read the French copy of his treatise when it first appeared in 1854, with a lively and absorbing interest, we have read the translation before us with a pleasure in nowise abated by our familiarity with its contents. This translation we have compared with the original text, and find it to be an accurate and reliable rendering of the French. Dr. Reeve has happily and skilfully preserved the spirited and vivacious style of the author. J. A. M.

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[1] Observationes Anatomicæ et Epist. Med. ex Schedis Posthumis. Hafniæ, 1664.

BIBLIOGRAPHICAL NOTICES.

ART. XXII.—*Transactions of American State Medical Societies.*

1. *Transactions of the Medical Society of the State of Pennsylvania, at its Eleventh Annual Session, held in Philadelphia*, June, 1859. 8vo. pp. 120, 1859.
2. *Medical Communications of the Massachusetts Medical Society.* Vol. ix., No. 5, 1859. Second Series, vol. v., part 5. 8vo. pp. 130, 1859.
3. *Transactions of the Indiana State Medical Society, at its Tenth Annual Session, held in the City of Indianapolis*, May 17, 1859. 8vo. pp. 48, 1859.
4. *Minutes of the Tenth Annual Meeting of the Medical Society of the State of North Carolina*, held at Statesville, May, 1859. 8vo. pp. 28.
5. *Proceedings of the Sixty-seventh Annual Convention of the Connecticut Medical Society*, held at Middletown, May, 1859. 8vo. pp. 108.

1. THE eleventh annual session of the Pennsylvania State Medical Society was opened by an address from the President, Dr. Smith Cunningham, of Beaver County. The subject of the address is "the popular errors which prevail in respect to the duration of utero-gestation in the female of the human race." The theme is an interesting one, as well in reference to its medico-legal relations, as to its bearing upon the peace, often, of families. It is very discreetly and ably handled by Dr. Cunningham. Notwithstanding the average duration of utero-gestation in the human female, may, with great certainty, be fixed at about 275 days—counting from the time of conception—a limited range of some five days either above or beyond this period is usually allowed; in other words, it is admitted that, while pregnancy may terminate at the end of two hundred and seventy days, it may also be protracted to the end of the two hundred and eightieth day. Although this is, certainly, the usual course of things, still, it is well known to accoucheurs that a fully developed infant may be born within the shortest period mentioned above, on the one hand, while, on the other, gestation may be prolonged far beyond the longest. Popular opinion, however, admits of no such wide deviations. According to it, the period during which the child is carried in the womb—that is, the period which elapses between conception and delivery, is nine calendar months or forty weeks—only a very few days' variation short or in excess of this period being allowed, particularly in the case of a first birth, or when the husband happened to have been absent at the time when conception, according to popular theory, should have occurred in order to initiate a gestation of nine months. It will be readily perceived that, under such a theory, the grossest injustice cannot fail to be inflicted, on very many occasions, upon the most honest and virtuous of women.

In respect to those births which occur previously to the termination of forty weeks, the accoucheur can experience but little difficulty in determining, from the condition of the child when born, whether its birth has or has not been premature. Even, however, where no evidence is presented by the infant of deficient development, the numerous well authenticated facts on record, which prove beyond, we think, the possibility of doubt, that utero-gestation may be accomplished, and a perfectly developed child born, at a period short of forty weeks, should lead invariably to a judgment favourable to the mother, in the absence of any positive evidence of misconduct on her part. As to the cases in which pregnancy is reputed to have been protracted beyond forty weeks, there is always, it must be confessed, no little difficulty in verifying the fact of the prolongation of utero-gestation, inasmuch as we have no positive data by which, in any instance, to determine the exact period of conception. We are obliged in these cases to accept the testimony of intelligent and virtuous matrons, sustained as it is, to a limited extent, by the few instances upon record in which immediately after connection with her husband, the female had been so circumstanced as, apparently, to preclude the possibility of her having had sexual intercourse with him or any other male, up to the period of her confinement.

How far utero-gestation may be prolonged beyond the normal term cannot be settled with any degree of certainty. It has been known to be protracted to the 287th, 294th, and even to the 300th day, and upwards. Cases of this kind have been recorded, and the evidence by which the duration of gestation in each of them is established is as satisfactory and conclusive as it is possible for it to be in reference to a subject of the nature and character of the one under consideration. We have a right, therefore, to assume it as an established truth, that the period of gestation in the human female is liable to considerable variations from the usual term of forty weeks; consequently, no female who has always sustained an irreproachable character for chastity and truthfulness can, with justice, be reproached, or branded with infamy simply from the circumstance that, in her case, utero-gestation has been accomplished within a shorter period or has endured for a longer one than the usual average.

Reports are presented from the medical societies of Beaver, Bradford, Carbon, Indiana, Lebanon, Mercer, Montgomery, Perry, Philadelphia, Schuylkill, Susquehanna, and York Counties. Those from Carbon, Indiana, and Susquehanna, are confined to simply a list of their respective officers and members, while of the remainder, eight furnish very concise, superficial and unsatisfactory sketches of the medical history of the several counties from which they emanate. Some excuse for the bald and, generally speaking, uninstructive character of these reports, may, perhaps, be found in the fact that, throughout the State of Pennsylvania there reigned during the year 1858—the period embraced in the reports before us—an almost unexampled condition of healthfulness; an absence, certainly, of any important epidemic malady, with a very limited prevalence of the usual endemic diseases of the different sections of the State; and in such of these as did occur an unusual mildness of character. Even, however, giving to such excuse all the weight it merits, it appears to us that this very year must have presented a field for medical observation from which, had each portion of it been carefully cultivated by the many talented physicians within the State, much valuable fruit, acceptable to the profession generally, here and elsewhere, might have been culled.

In the report from Beaver County Medical Society, its author, Dr. Stanton, notices the fact, that an "unusually large number of cases of phthisis" had recently occurred in and about the village of New Brighton. During the year 1858, especially the early portion of it, several deaths from the disease were reported, exceeding in number those which had occurred for four or five years previously. Dr. S. can assign no cause that could be considered capable of developing consumption in the locality referred to. There are few places in the State that can boast of greater healthfulness. At all seasons of the year there is a pleasant breeze up and down the river, furnishing a supply of fresh and pure air, while, at the same time, the surrounding hills protect it from the cold winds of the winter and spring. Dr. S. is of opinion that it was by contagion the increase in the number of cases of consumption at New Brighton was produced. It may be proper to remark that most of the deaths above referred to, took place in quite aged patients who had been labouring under all the symptoms of consumption for many years.

We are led to believe, from statistical information which we have been at some trouble to collect, that consumption of the lungs is a disease the prevalence of which has not only increased in the village of New Brighton, of Beaver County, but that it is increasing every year among the residents of all the interior villages of the State of Pennsylvania, and among her rural populations generally; and in a ratio approximating very nearly to their respective increase in wealth and luxury. The prevalence of consumption among the families of our villagers and farmers can be shown, we believe, to have kept step with the deviation of these families from their former frugal, active, and industrious manner of life, and their adoption of the absurd practices which characterize the mode of living of our fashionable classes in the larger cities. The question as to the propagation of consumption by contagion has been mooted by more than one writer on the disease. That the disease can be communicated by the sick to the well is a popular belief in certain portions of continental Europe, and there are many curious facts upon record, and some have fallen under our own notice, which would seem to favour this belief. A careful investigation of all the evidence bearing upon the subject has convinced us, nevertheless, that tuberculosis, whether of the lungs or any other organ, is never due to a contagious emanation from the bodies of those labouring under it.

Dr. S. states that, in a portion of the cases of consumption which fell under his notice, glycerole and syrup of the hypophosphites were employed, and, in some instances, with apparent benefit, but in others with no appreciable results. He has seen more advantage from the use of iodide of potassium, combined with various other remedies.

The report concludes with a brief notice of two cases of obstinate hiccough, one of them successfully treated. The first occurred in a girl, sixteen years of age. A *post-mortem* examination showed that the cause of death had been inflammation of the membranes of the brain around the origin of the pneumogastric nerve, with extensive serous infusion. The second case occurred in an old man. This was, at first, supposed to have arisen from gastric irritation, and was treated accordingly, but with no benefit. Recollecting the nature and seat of the lesion in the former case, a blister was applied "to the back of the head and neck." As soon as vesication ensued, the hiccough ceased, and the patient recovered rapidly.

In the report from Bradford County Medical Society, Dr. Holmes states that, during the year 1858, typhoid fever prevailed in that county almost entirely in high localities—having occurred on the loftiest pinnacle of the Armenia Mountain, and also in the most elevated situations in every direction from the village of Canton. "Wherever," he remarks, "it makes its appearance, as a general thing, it was confined to a few families, and sometimes to only one family in the same vicinity; but, when it made its appearance in a family, it generally went through it. The fatal cases were in the proportion of about *one* to *twelve*."

Dr. Holmes relates also a case of sudden death in the keeper of a tavern, caused by seeing a man labouring under delirium tremens cut his throat in his bar-room. Frictions, galvanism, opening the jugular vein, the warm bath and artificial respiration were resorted to with a view to his restoration, but with no effect.

A very excellent sketch, illustrated by a map, is given of the geological features of Bradford County.

No facts, it is remarked, nor statistics, have as yet been collected, adapted to throw any light upon the connection, if any exist, between the physical and medical geology of the county. There is very little iron found in Bradford, and a considerable amount of limestone. Since 1849, agriculture has become greatly increased and improved within its limits. Dense forests of vast extent have, in consequence, rapidly become cultivated farms.

We learn from the report before us, that dysentery has not prevailed to any extent in the county of Bradford, for many years past; the few cases that are met with seldom terminate fatally. The only remarkable change, it is said, that has occurred in the diseases of the county is, the greatly increased prevalence of periodical fevers and other affections of a malarious origin.

In the report from the Lebanon County Medical Society, Dr. B. F. Schneck states that, from November, 1858, to May, 1859, he had attended a larger number of cases of inflammation of the lungs and air-passages, than he ever before had done within the same number of months.

He treated, he remarks, one hundred and seven cases, within the above period—ninety-eight were of pneumonia and bronchitis, occurring almost exclusively in children, seven of croup, and two of pleurisy. They were, in general, very manageable; this he imputes to his having made use, almost invariably, after venesection, when this was required, of the veratrum viride. From an extensive experience of the curative effects of the veratrum in all inflammatory affections, he regards it as a valuable addition to the materia medica. He warns us, however, that its use requires judgment and caution. At first Dr. S. employed Norwood's tincture, as procured from the druggists; having, however, obtained a very good sample of the root, he prepared the tincture himself, and found this possessed of greater activity—he was often, indeed, startled by the violent effects it produced when given in the usual doses. From half a drop to a drop, given to an infant of from six to twelve months, controlled a pulse of 130—160, as if by magic. Adults were sometimes violently affected by five or six drops, every six hours. Dr. S. has found that the most alarming symptoms which result from the administration of the veratrum, are readily removed by the application of a sinapism over the stomach, and internal stimulation by means of brandy.

For children, the favourite formula of Dr. S. is, ℞.—Syr. ipecac. *vel* syr. scillæ comp. f℥ss; sp. ether. nitrici f℥ss; tr. verat. virid. gtt. xv—xxv.—M. The dose being from 15—30 drops, every three hours according to the age of the patient. Dr. S.'s invariable rule is to caution the attendants never to give the syrup as an emetic. Two teaspoonfuls of it were given in mistake within an hour, to an infant ten months old, threatened with suffocation, in the course of an attack of pneumonia. Sudden prostration ensued, and, in the midst of violent retchings, and vomiting, the child died. Although this painful occurrence has given to Dr. S. a lively sense of the danger attendant upon the incautious use of the veratrum viride, he is still convinced that, in judicious and intelligent hands, it is one of our most potent antiphlogistic remedies.

An observation that occurs towards the close of the report in reference to the prevalence of criminal abortion within the county of Lebanon, as a cloak to conceal marital offences, has impressed us with a painful sense of the increase of vice and immorality amid the populations of the rural and agricultural districts of Pennsylvania.

Dr. E. Griswold, of Sharon, states, in the report of the Medical Society of Mercer County, that cases of incontinence of urine had been of frequent occurrence in his practice.

"The urine generally reddened litmus, and, in some cases, deposited urates of various shades of colour, mostly pink, or yellowish, dissolved by heat. In one case, the urine dribbled constantly; in the others, and particularly in children, it was passed involuntarily in bed, and sometimes as often as every half hour during the day. The symptoms of constitutional or other disorder present, were treated according to the indications presented by each individual case."

Dr. G. found Tilden's fluid extract of belladonna, given in a solution of bicarbonate of potass, so much superior to any other remedy, in these cases of incontinence of urine, that he now uniformly prescribes it, varying the dose according to the age and idiosyncrasy of the patient. He generally begins with the administration of about one and a half or two drops of the extract. belladonnæ, in a teaspoonful of saturated solution of bicarbonate of potash, two or three times a day for a child three years old. Several cases, on which the remedy appeared to produce no perceptible effect for the first week or ten days it was employed, were cured by continuing it perseveringly for several weeks.

Dr. Poley, of Norristown, gives us, in the report of the Medical Society of Montgomery County, a general statement of his experience in respect to the treatment of inflammatory diseases by large doses of digitalis, subsequently to his first announcement of the practice, in the report of the Montgomery Medical Society, made at the session of the State Medical Society of 1856. He is still confident as to the propriety and success of the practice referred to. He has found, however, that, in cases of inflammation of the brain occurring in children of a year old, possessed of a robust, plethoric constitution, the ordinary dose required is six, eight, or ten drops, every four hours, until its action is beginning to be manifested. In infants of feebler constitution, three or four drops every four hours will be sufficient.

Dr. P.'s experience with the veratrum viride as a substitute for the digitalis in the treatment of inflammation, has shown him that it is far inferior in efficacy to the latter. He found, that when given in doses sufficiently large and frequent to control vascular action, the veratrum occasions much gastric distress, and is transient and irregular in its effects. The preparation employed by him was Tilden's fluid extract.

In this same report two interesting cases of wounds are related by Drs. Wm. Corson. and L. W. Read, of Norristown.

The first occurred in a lad, seventeen years of age. Whilst manipulating with a pistol, charged with two balls, wrapped in a cotton fabric, it was accidentally discharged. The balls entered the left leg, eight inches above the knee, and remained partially imbedded in the head of the tibia. The accident was attended by very severe and continued suffering. The balls were removed whilst the patient was under the influence of chloroform, the anæsthetic effects of which were continued for many hours, in order to quell the persistent pain. Forty-eight hours after the receipt of the injury, decided symptoms of tetanus supervened. These symptoms, it is believed by the relators of the case, were modified, and in the end entirely arrested by the repeated inhalation of chloroform, as the exigencies of the case seemed to demand, during a period of several days. The patient entirely recovered, and with a perfect use of the knee-joint.

The foregoing case has been reported, mainly, we are told, to direct attention to the fact of the employment of unadulterated chloroform for a long period, and with marked benefit—notwithstanding so protracted a continuance of the anæsthetic has been pronounced, by practitioners of experience and judgment, to be attended with great danger.

The second case referred to was that of a strong quarryman, thirty years of age, who was stabbed at midnight, on the 15th of January, 1859. The wound was inflicted by a shoemaker's knife, which entered an inch below the bifurcation of the left carotid artery; completely severing the latter vessel, and passing downwards for two inches. When seen, half an hour after the injury was inflicted, the patient was pale, pulseless, and, to the bystanders, apparently dead. The hemorrhage from the wound had ceased. Efforts were made to resuscitate him, and at the end of fifteen minutes he gasped feebly. Reaction was faint and sluggish, and the patient was incapable of proper mental co-ordination for several days. The pupil of the right eye was dilated. No pulsation could be detected beyond the wound. The right arm and leg were paralyzed. No bleeding accompanied or followed the reaction. The wound was closed by stitches and adhesive strips, supported by a pledget of lint and roller. The recovery of the patient proceeded regularly on to completion. After the lapse of many weeks, he was submitted to the examination of surgeons from Philadelphia, who recognized in him the peculiar condition of one who had had the carotid artery tied. There was no pulsation above the place of injury—the left side of the face was less full than the right; the right pupil was dilated. On the 1st of June, 1859, he was labouring in the quarry, the same as before he was stabbed. He was, however, less strong, and the paralyzed arm and leg were still somewhat affected, and the right pupil continued still dilated.

Dr. J. Newton Evans describes a case of enormous distension of the bladder from retention of urine, in a male sixty-nine years of age. When first seen by Dr. E. his abdomen was much swollen, and the left leg largely œdematous. He had been for some time under the care of a physician who pronounced his disease to be cancer of the bladder, with general dropsical effusion. There was a constant desire to urinate; at each attempt only a small quantity of urine was passed, amounting in all to about a pint in the twenty-four hours. In consultation with Dr. Hill, at four o'clock in the afternoon, seven and a half pints of urine were drawn off by the catheter; at ten o'clock on the morning of the next day seven pints more; at six o'clock in the afternoon an additional five pints; at noon of the third day two pints more, and in the evening another two pints. At ten o'clock in the morning of the fourth day thirty-four ounces were drawn off, and at six in the evening sixteen ounces more. The entire quantity drawn off within the twenty-six hours being two gallons three and a half pints. The urine decreased in amount from day to day, and at the end of eight or nine days it became normal in quantity. The retention in this case was caused by an enlarged prostate. The patient at the end of five months had regained his usual health, and became quite active, riding about daily, although a man of nearly seventy years of age. The necessity of drawing off the urine daily by the catheter continued, an operation the patient was able to perform readily himself.

Dr. Hiram Corson, in the same report, refers to three cases of St. Vitus's dance

—*chorea*—occurring in girls respectively of five, eight, and thirteen years of age, all of which cases yielded in a few weeks to the use of "macrotyn" (*Actæa racemosa?*). To the oldest of the girls a grain and a half, and to the youngest one grain, was given three times daily. Dr. Corson refers also to three cases of incontinence of urine in children—two girls and one boy—aged respectively twelve, fourteen, and eighteen years. In two of the cases the incontinence had continued from early infancy. In the first case a teaspoonful of cubebs, three times a day, cured the patient entirely in less than a month. In the second case the same remedy gave temporary relief; the infirmity returned at the end of eight months, but by a resumption of the medicine the incontinence was again removed. In the third case the cubebs, in large doses and long continued, produced no effect. Twenty-five drops of the tincture of cantharides, given three times a day, stopped the incontinence from the first day it was given. The remedy was continued for two weeks, after which there was no return of the infirmity.

To the report is appended a biographical notice of Dr. James Anderson, who died June 1, 1858, aged seventy-six years.

Dr. Hooke, in the report of the Perry County Medical Society, states that during the year 1858 he saw over ninety cases of enteric fever, eighty-two of which were under his own immediate treatment. About nine out of every ten of these cases terminated favourably. In regard to treatment, Dr. H. remarks that while he has never been in the habit of giving much medicine in this disease, and in a few mild cases has conducted the patient safely through the attack by merely regulating his bowels, still, in the more severe forms of the fever, when there is a full pulse, with pain in the head, and symptoms threatening inflammation of the brain, he never hesitates to bleed, and has had occasion to repeat the operation a second time, and with good results. Dr. H. is convinced that the detraction of a sufficient amount of blood at the onset of the disease, particularly in patients of robust habits, has the effect of rendering the attack milder, and even shorter in duration. He assures us that he has never had occasion to regret a resort to bloodletting in a single instance in enteric fever, where its employment seemed to be demanded. On the contrary, he has had cause, in one or two instances, to censure himself for its neglect at the proper period. He would always, he remarks, rather incur the risk of debility in the after-stages of the disease, from a too free use of the lancet, than the hazard of a fatal inflammation from its omission.

Appended to the report is a biographical notice of Dr. William R. Howe, who died May 24, 1859, in the thirty-third year of his age.

The report of the Philadelphia County Medical Society is made up entirely of biographical notices of Dr. J. K. Mitchell, who died in Philadelphia, April 4, 1858, in the sixty-fifth year of his age; of Dr. J. H. Weir, who died September 12, 1858, in the thirty-ninth year of his age; and of Dr. Gavin Watson, who died on the 28th day of October, 1858, in the sixty-third year of his age.

Passing by the report from the Medical Society of Schuylkill County, which contains an interesting but very rapid and scanty sketch of the principal diseases and accidents observed by the leading practitioners of the county, we come to the report from the Medical Society of York County. With the outlines of a case of diuresis related in it, by Dr. James M. Shearer, we close our notice of the volume before us. The case referred to occurred in a young married woman, aged twenty years, with a child three months old. She had laboured under an excessive discharge of urine for at least eight years. Her thirst was excessive, demanding frequent and large draughts of water. She was emaciated; her skin cold and clammy; her pulse eighty-two, and quite small; her appetite poor; her stools scanty, and devoid of smell. She experienced great pain in the epigastrium, especially after eating. The average quantity of urine passed daily was nineteen pints, of a pale amber colour, and of low specific gravity. Repeated analysis of the urine with Trommer's test for the detection of sugar, proved very clearly that the case was simply one of diuresis. The patient was placed upon a course of tonics; the citrate of iron, with kindred preparations; Dover's powder at night, exercise, friction, and warm bathing, with a proper regulation of diet. After this course of practice had been pursued for about a month, the general health of the patient is reported as improved; her appetite being much better, and the epigastric pain almost gone, but without any diminution in the amount of urine passed. Dr. Shearer, at the date of the report, considered the prognosis unfavourable.

2. *The Medical Communications of the Massachusetts Medical Society* for the current year, contain only the proceedings of the Councillors, from October 6, 1858, to May 25th, 1859; the proceedings of the Society at its annual session of May 25th, 1859; the Anniversary Discourse, by Dr. Timothy Childs, of Pittsfield, and a brief report of the *zymoses of Massachusetts* during the year 1858—but neither the prize essay, nor either of the professional papers communicated to the Society at its session of the present year have a place in the volume; the omission of these being due, as we are informed by a note from the Committee of Publication, to the low state of the Society's finances.

The subject of the address by Dr. Childs is—Rational Medicine: its past and present—its true relations to specialities, to the partisans of exclusive systems, and to empirics. It is a very plain, unpretending, but at the same time sensible and manly defence of the claims of rational scientific medicine upon its professors and practitioners, and upon the public at large: the debt which it owes to the labours of those who, after having well grounded themselves in the general principles of medical science and practice, devote their time and energies to the investigation of the etiology, pathology, and therapeutics of some particular disease, or of the diseases of a particular organ; and finally, a brief examination of the question as to the proper course to be pursued by medical men and medical associations in reference to the partisans of exclusive systems and special schemes of medicine.

With these latter, Dr. Childs is inclined to observe no middle course. "The moment," he remarks, "you advertise yourself, or allow yourself to be advertised, or written down, or called, a homœopathist, an allopathist, or an anapathist, a hydropathic, botanic, eclectic, electric, analeptic, or *any other sort of doctor*, you cut yourself off, and justly, from the communion of the medical church catholic; and the essence of the quackery is, that you ignore the wisdom and guidance of the past, and assume and advertise yourself to be possessed of a wisdom beyond that of your contemporaries. Here is solid ground. On this ground I would expel a homœopathist, and on the same ground I would expel all other empirics."

Among the "exclusive schemes" of medicine, Dr. C. includes the numerical method as urged by some of its advocates, who would exclude all other methods in the statement, analysis, and appreciation of medical facts, whether etiological, pathological, or therapeutic.

"They tell us," remarks Dr. C., "these exclusives of the school of observations—that 'all true and direct relationships are invariable;' that is to say, that 'a quart of blood, drawn in a given time from the arm, will always, under the same circumstances, produce the same effect; that two grains of calomel, or a quarter of a grain of the tartrate of antimony and potassa, or one half a grain of opium, or these three substances in combination, introduced into the system, every three or six hours, will always, under the same circumstances, be followed by the same results.' They repeat that 'all true and direct relationships are invariable.' Now we venture to say—Not so fast, gentlemen. You must allow us to put some faith in the records of such observers as our science boasts—at least, until the numerical method shall have shown their fallacy; and, in the meantime, do not render worthless your numerical method of statement, analysis, and appreciation, by vitiating its most important element. Do not exact of every poor pleuritic the pound of blood, or the swallowing of just two grains of calomel, or a quarter of a grain of the 'tartrate of antimony and potassa,' or the 'half grain of opium,' or 'these three substances in combination every three or six hours.' We have such tables, and I cannot but see in them an abuse of figures. You are grasping at the shadow of accuracy, and losing the substance, as much as did the mathematicians of the 17th century, with their tables of medicines accurately graduated to the squares of the constitution, and just sixty-eight pounds of bile passing through the hepatic duct in every twenty-four hours—a conclusion, quaintly observes Dr. Percival, 'repugnant to fact and experience.' The therapeutical results arrived at by the numerical method are mere *averages*, and therefore of no practical value in particular cases. A patient, it has been well said, is never an *average*, but a *case* by and of itself. [*Peaslee's Discourse, New York Academy of Medicine*, 1858.]

"You will observe that it is not the numerical method, but the abuse of it—that is, the *exclusive use* of it—to which I object. Let it be applied wherever and whenever it be found applicable—let us learn all we can from it, but do not confine us to it."

"Every man, observes the late accomplished author of the Philosophy of Medicine, 'in every age, who has stated numerable facts in anatomy, physiology, pathology, or therapeutics, in *specific numbers*, has made use of the numerical method. Every observer who counted accurately his cases of disease, or any of the phenomena connected with these cases, and gave the result *in exact numbers*, instead of resorting to the more common and indefinite terms of 'a small number,' or 'a large number,' 'frequently,' or 'rarely,' has, so far, made use of this method.

"This accurate and beautiful method of observation I do not stand up here to decry. It is its *abuse*, by insisting on it as the *one* and *exclusive* method in the cultivation of medicine, against which I protest. Those ultraists of the rigorous school, date the *dawn* of medical science at about 1827, when Louis, whose name I mention with the profoundest respect, published his great work on the typhoid affection (fever); and the very liberal of them see a dim morning twilight as early as 1808, when Broussais, before he apostatized and set up a theory of his own, published his *History of the Chronic Inflammations*. These gentlemen have no faith in Sydenham or Hunter, or anybody else who has not fulfilled all the requirements of their 'method.' Tell one of them, usually a young man fresh from Paris, that Dr. Nathan Smith found that, with the best treatment he could give to typhoid fever, one in ten dies, he shakes his head; Nathan Smith, though an excellent observer, did not make use of the 'numerical method.' Tell him that M. Louis finds the mortality to be one in nine and seven-elevenths, he takes off his hat."

The report on the subject of zymoses is the first fruits of a system of registration recently introduced by the Massachusetts Medical Society. The object of this system is to institute an inquiry into the occurrence of diseases, especially epidemics, the laws of whose access can only be ascertained by a knowledge of the times, places, and characteristics of their visitations; to collect facts in a more definite form than have hitherto been obtained, in order to elucidate the etiology of a class of diseases by far the most frequent in their occurrence, and the most interesting in their character of any that prevail in this our variable climate.

The simple facts set forth in the report before us are in themselves extremely interesting; but, as is the case in the early working of every measure demanding for its complete and satisfactory execution the cordial approval and personal support of the entire profession, they are at the same time imperfect, and unadapted to lead to any important general conclusions. The committee, however, who have the whole matter in charge, assure us that the success of the system in this the first year of its trial has been as flattering as could have been expected, when the variety of hindrances that present themselves in the way of its accomplishment are taken into consideration.

The system of registration referred to consists in the distribution to each Fellow of the Society of a printed blank, having the names of all the zymoses, with their respective synonyms, in one column, and opposite to these names, for each month of the year, three ruled columns for the reception of the number of cases of the respective diseases falling under the care of the Fellow, according as they were mild, severe, or fatal in their character.

At the close of the year, these individual records are to be returned by the physicians to the secretaries of their respective county or district societies; and those for each county or district being condensed into a single report, are in this form to be transmitted to the secretary of the State Society.

Most of the districts, we are informed, made returns the first year, some of which were complete, or the result of the records of a majority of the Fellows in active practice. From many districts, however, the returns were from the records of less than a moiety of the practitioners; while from a few districts no return was received.

3. *The Transactions of the Indiana State Medical Society* open with the address of the retiring president, Dr. Talbut Bullard. The theme of Dr. B. is "The Physician, his Trials and Rewards." Truly a fruitful and a noble subject, the simple, truthful narrative of which is pregnant with as much of interest and of grandeur as it is possible for the imagination of the poet or the eloquence of the orator to infuse into any subject submitted to his charge. The physician! the profound scholar, versed in many sciences, familiar with the nature and structure of the human organism, with the laws that govern it in health, and with the changes wrought in that structure, and the disturbance created in the working of those laws by the condition of disease; knowing the causes by which that condition is produced, and the means and agencies by which it may be subverted, and the normal state, and action, and relations of every organ and tissue restored; familiar with the facts and experience, and deductions of past centuries in regard to the science and the art of healing; and while confirming and adding to these facts and that experience, and correcting the errors of those deductions by his own investigations and observations, he presents himself not merely as a professor of the art, and a firm believer in and ardent student of the science of healing, but in a still higher, more important capacity, as the preventer of disease, the conservator of public and of private health. In thus accumulating knowledge, for the benefit, not of himself and family and friends, alone, nor solely of those of his own neighbourhood and nation, but of mankind at large, he is willing to risk life, to resign domestic comfort, to incur the certainty of trials, the nature, extent, frequency, and character of which must be experienced to be appreciated. No description, simply, can portray, no tongue can tell to the uninitiated, the agony, the bitter disappointment, the continued care and anxiety, the fearful sense of responsibility, the heart-sinking which it is the lot of every enlightened and truly sensitive physician to experience, to a greater or less extent, during his career.

When faithful to his calling, as a remuneration for all this labor, and all his trials, the physician, it is true, has his reward, the gratification, the actual recompense which ever follows deeds of charity and pure beneficence; which accompanies the consciousness of the power of doing good, and of the rightful exercise of that power, the power of mitigating human suffering, and alleviating human sorrow, of increasing the sum of man's enjoyment and happiness, of assisting those who are oppressed with sickness and pain, of arresting the hand of death upraised to strike, and, when no more can be done to stay the destroyer, to strip "man's last enemy" of at least a portion of his terrors, by leading him who is "about to perish" to the great spiritual Physician, who is ready to throw across the dark valley a light that shall reveal it as the road to a glorious life which neither pain nor sickness can embitter, nor death again cut short.

The address is succeeded by the report of the Committee on Medical Education, by Dr. Charles Fishback, of Shelbyville. The report is a very candid, outspoken one. It places in strong relief the shortcomings of the systems of medical education at present pursued throughout the United States, and the serious evils which flow from them because of their general inefficiency on the one hand, and, on the other, the facility with which, under their ministration, the ignorant and incompetent, equally with the well instructed and competent, may become invested with the doctorate, and thus legally authorized to take rank with the best instructed and most accomplished physicians of our country.

The measures proposed by the Committee to remedy this state of things, and to inaugurate such a system of medical education as shall insure to the community everywhere the services of learned, skilful, and honest physicians, are legislative action; enlargement and prolongation of the course of study in our medical schools; a fair, strict, and ample examination into the qualification of all applicants for the doctorate; and an effort to enlighten the public mind as to the importance to the community at large of well-instructed medical practitioners.

In reference to these measures, the Society resolved to take immediate action to secure their being carried out, and with the view to enlist in their inauguration and enforcement the countenance and aid of other medical organizations.

The next report is on the treatment of syphilitic diseases without the use of mercury, by Dr. R. E. Haughton, of Richmond, Indiana. It is rather an exposition of the opinions and practice of the leading physicians and surgeons of Europe, in proof that syphilis, in its primary, secondary, and tertiary forms, may be satisfactorily treated and effectually eradicated without the use of mercury, than the presentation of any extended series of observations made by the reporter with the deductions which legitimately flow from them. The report teaches nothing new in evidence of the non-necessity of mercury for the cure of syphilitic affections, nor in respect to the best plan of treating these affections without mercury. With a very slight variation in the language in which it is expressed, we fully concur in the correctness of the sentiment with which the report concludes: "While we have no prejudice against the employment of any remedy when judiciously, appropriately, and timely administered, we must protest against the irrational and uncalled for employment of mercury, not merely in syphilis, but in every other disease."

The following report is on obstetrics. It is by Dr. H. P. Ayres, of Fort Wayne. It embraces the statistics of *ten thousand cases*, furnished to him by practitioners in different parts of the State of Indiana. Among these 10,000 cases there were—

Abortions	288
Miscarriages	242
Twins	178
Stillborn	167
The mother died in labour in	5
Hemorrhage, before, during, or after labour, occurred in	58
Convulsions, during parturition, occurred in	101
Rupture of the uterus occurred in	1
Instrumental aid was resorted to in	68
False presentations occurred in	147
Puerperal fever occurred in	92
Strictly natural labours, without accidents	8653

Dr. Ayres, in commenting on these statistics, remarks, that he has very little confidence in reports of abortions and miscarriages, more especially in private practice, there being so many considerations tending to alter materially their reliability.

In respect to twin cases, the foregoing report presents double the percentage of any of the other reports that have fallen under the notice of Dr. A. Whether this is owing to the natural fecundity of the females of Indiana, or to the climate, he does not pretend to decide.

Deaths occurring during labour, and within the month, are not one-fifth so frequent as in Great Britain, and they will bear a very favourable comparison with the numbers given in any of the reports known to Dr. A.

The cases of hemorrhage before, during, and after labour, largely exceed in number those of other reports—being about, in comparison, three to one. Why it is so he cannot say. The same is true in reference to puerperal convulsions. In Indiana, so far at least as Dr. A.'s information, which is imperfect, extends, there occur six cases to one, in excess of any report that has as yet fallen under his observation. And yet, notwithstanding the excess of hemorrhage and convulsions, there are fewer deaths by about the same ratio.

But a single case of ruptured uterus is reported; in this a post-mortem examination revealed a carcinomatous state of the organ.

Of false presentations there were 147 in the ten thousand cases, which is a very small percentage.

Instrumental labour occurred in only half the proportion of cases compared with other reports.

In respect to puerperal fever, there is an excess over all other reports. For this excess Dr. A. is unable to offer any satisfactory reason.

An interesting case of abscess, succeeding childbirth, is related by Dr. Thos. B. Harvey, of Plainfield, which we shall notice elsewhere.

The report on Fractures and False Joints, by Dr. Meeker, of Laporte, which follows, is a continuation of that presented at the session of 1858. It is mainly occupied by a consideration of the subject of ununited fractures, their causes, and treatment. After a rapid view of the circumstances and conditions that most usually interfere with the prompt and effectual consolidation of fractures occurring in the bones of the extremities, and a brief consideration of the means recommended by the leading surgical authorities to bring about bony union when a false joint has been in consequence created, Dr. Meeker remarks:—

"In summing up the treatment in ununited fractures, I have come to the following conclusions, from my own experience, and from all that I can learn from others, that we should, in the first place, where the case is not of long standing, resort to rubbing the ends of the bones together, with firm dressings, as pasteboard splints and a starch bandage, or leather splints moulded to the part, so as to make pressure, until a sufficient increase of action is manifested in the part, which will be known by pain and swelling. If we do not succeed in producing this result in from one to two weeks, I would then apply the splint recommended by Mr. Smith, and allow the patient to get up from bed; if in a lower extremity, allow him the use of crutches, giving some motion to the fractured part until pain and sensibility were manifest; then apply pretty firm pressure, and continue this treatment, if necessary, for six months. If this failed to produce the desired result, I would then make an incision down upon the fractured bone, saw off the ends of the bone, or cut them off with a pair of bone forceps, bring the ends of the bones together, and apply the same dressings as in recent compound fracture.

"Although much may have been said in disparagement of this operation. I am fully satisfied that in cases of long standing, where there is a false capsule formed around the ends of the bone—they have become rounded and smooth by absorption, or a ligamentous union joins the bones together—then this is the operation which we should perform; and, with the aid of chloroform, we prevent much of the suffering of the patient, and prevent, in a great measure, the shock which the system would otherwise receive from the operation. This would lessen very materially the danger heretofore ascribed to such operations by surgical writers."

Speaking of the treatment of false joints by the introduction of a seton between the united fragments of bone, first proposed and practised by the late Professor Physick, Dr. Meeker very gravely informs us that Dr. P., when he suggested this plan, was "of New York." The doctor ought certainly to have been better informed than to be led into so gross an error. Dr. Physick never practised as a physician or surgeon in New York; from the commencement of his professional career to the day of his death, he resided in his native city, Philadelphia.

A report on the microscope is next in order. It presents, in a kind of general summary, the importance of the facts revealed by the instrument for the formation of an accurate diagnosis of disease. A very correct though general and superficial sketch is presented of some of these facts, of the very existence of which we should be ignorant but for the aid of the microscope. The report is drawn up by Dr. Calvin West, of Hagerstown.

Two cases of amputation of the thigh are reported by Dr. Horace Winton, of North Manchester:—

1st. A man received a severe kick on the shin, which was followed by erysipelas. He was treated during ten days by a Homœopath, with blisters (?) from the knee to the ankle of the affected limb. No improvement resulting, Dr. W. was called in (Feb. 5, 1859). The patient was much emaciated, and greatly debilitated in consequence of the excessive purulent discharge from the diseased limb; his pulse was 120, and very feeble; his tongue dry and black—in a word, he had become sunk into a low typhoid condition. The leg was much swollen, and in places gangrenous. A tonic and alterative treatment, with proper local applications was resorted to, but without any decided benefit. The diseased limb was then amputated above the knee, after which the patient rapidly recovered.

2d. The second case was that of a man, 25 years of age, of a scrofulous habit. The right knee-joint became inflamed when he was eleven years old, suppuration ensued, with a continual discharge of purulent matter for several years subsequently. The knee finally healed, but the limb was left in a weak condition. In April, 1858, whilst the patient was engaged in moving a building, he received an injury in the same knee, followed by inflammation and suppuration. Two openings were made into the abscess, which gave dischage to half a pint of pus daily. The patient suffered much and became greatly emaciated. Twenty-six days after the abscess was opened, the limb was amputated, several inches above the knee. No union of the flaps took place, in consequence of the unhealthy condition of the parts, and at the end of two weeks a second amputation was performed. Under an appropriate tonic treatment the patient rapidly improved, the stump healed kindly, and the patient was dismissed well three weeks subsequent to the second amputation.

The *Transactions* close with an obituary notice of Dr. Nathan Knepfler, an Hungarian physician, who settled at Indianapolis in the year 1853, and by his moral character and kindly deportment as a man, his well cultivated mind, his varied knowledge, and his high professional attainments and capabilities, won the esteem and confidence of an extensive circle of friends and patients. He died, January 10th, 1859, at Shelbyville, Ky., where he had gone on a visit to his son. He had attained his fifty-sixth year at the period of his death.

4. With the exception of simply the minutes of the proceedings of the session of 1859, and the address of the retiring President, the publication issued by the *Medical Society of North Carolina* presents none of the scientific transactions of its last session. The reports from the several county societies; the papers on different subjects read by members, together with the address of Dr. J. J. Summerell, the Orator of the Society, were all referred for publication in the *Medical Journal of North Carolina*, a periodical published under the auspices of the Society.

The subject of Dr. Summerell's address was, some of the qualifications which should characterize the members of the medical profession: the position being eloquently enforced, that, while a thorough knowledge of the science and the art of healing is essential to constitute the skilful practitioner, not less essential are a polished demeanor, a high moral character, and a uniformly religious life, to the formation of the true medical gentleman.

The State Medical organization of North Carolina dates only from the 27th of January, 1849. Its subsequent progress has been one of constant and increasing prosperity. Though feeble in the commencement of its career, it is now recognized as the legally organized organ of the profession throughout the State, and includes among its members the greater portion of the respectable medical practitioners of North Carolina. In the fulfilment of the objects of its organization, it has succeeded in inducing those who would otherwise have withheld their quota from the general fund of medical knowledge, to embody their clinical observations in proper form, and to present them, through the pages of the Journal of the Society, for the benefit of their contemporaries and successors, and in this manner, it has contributed to the advancement of medical knowledge; by exercising a constant, judicious oversight over the conduct of its members, it has added its influence most effectual to the elevation of the character and standing of the profession, while by enlarging, through the reports and medical communications made to it, and through it to the public, our knowledge of the character, causes, pathology, prevention, and treatment of the various endemic, epidemic, and sporadic diseases, which the physicians, located in different sections of the country, are called upon to contend with, the Society has not failed in the accomplishment, to a good extent, of one of the great objects of its mission, the protection, namely, of the health, the promotion of the comfort, and the prolongation of the lives of the community. And, finally, by bringing together, at stated intervals, physicians from all the counties in the State, and under the most favourable opportunities for their becoming acquainted with each other, and for the interchange among them of professional and personal courtesies, the Society has established that harmony and unity of action between the members of the profession generally, throughout the State, upon which so essentially depends the security of their individual interests, and the triumph of the entire profession over those evils with which it has had so long to contend.

5. The *Transactions of the Connecticut Medical Society*, for 1859, open with an address from the President, Dr. Ashbell Woodward, of Franklin. The address is devoted to a history of medical organization in the State, but especially of the State Society, from its commencement in 1792 to the present time. From it we glean some very interesting reminiscences of the state of medical education, and of domestic medical literature in the early days of Connecticut, and the other New England States.

From their settlement in 1620, to the organization of the Connecticut State Medical Society, a period of more than 170 years, no systematic effort had been made throughout the New England States, to elevate the grade of medical education, or to regulate the practice of the profession, with the exception of the organization of a State Medical Society in Massachusetts, in 1781, of another in New Hampshire, in 1791, and of some two or three voluntary county medical associations in Connecticut.

During the whole of the seventeenth century, it was only in the larger and first settled of the towns, that a few able and educated physicians were to be met with. Among these stood pre-eminent the Hon. John Winthrop, who, in 1662, was made the first Governor of the Colony under the charter which he obtained from Charles II. He was an eminent physician, a ripe scholar, and a liberal patron of science in general. He was not only a member, but one of the founders of the Royal Philosophical Society. His field of practice was first, New London, and afterwards, successively, New Haven, and Hartford. He died in 1676. In the year 1652, Dr. Thomas Lord, of Hartford, obtained from the General Court the first license granted by it for the practice of physic and surgery. Two years later, Dr. Daniel Porter, of Farmington, likewise procured a similar license. Dr. Porter attained to considerable celebrity as a practitioner, and, for more than thirty years, was one of the leading physicians in the colony. Dr. Thomas Hooker, of Farmington, and Dr. Samuel Mather, of Windsor, were licensed towards the close of the seventeenth century. It is believed that both enjoyed the private instruction of Dr. Porter. Neither of them was less distinguished in the medical profession than their eminent preceptor.

At a still later date, it appears that the leading physicians of New England, but especially of Connecticut, were members, also, of the clerical profession, who, during their collegiate course, acquired a knowledge of medicine from the writings of Hippocrates, Galen, and other early authors. Of this class of physicians were the Bulkleys, father and son, of Wethersfield and Colchester; Elliott, of Killingworth; Fisk, of Haddam, and Collins, of Litchfield. The first two were graduates of Harvard, the remaining three of Yale. Some of them, particularly Elliott and Fisk, were physicians of great eminence, and were not unfrequently called, in consultation, into the adjoining colonies.

The earliest medical publications appeared in Massachusetts, and were called forth by the prevalence of epidemic disease. The first, published in 1677, was a tract entitled, "A Brief Guide in the Smallpox and Measles," written by Thomas Thatcher, a clergyman and physician. Other publications of this early period, characterized by great and varied learning, accuracy of observation, and originality of thought, and which would do credit to a much later age, might be here enumerated. Thus, the "Practical History of a new Epidemic Eruptive Miliary Fever," which prevailed in New England, in 1735–36, by Dr. William Douglas, of Boston, published in 1736; a "Description of American Yellow Fever," by Dr. John Lining, published in 1753; and a work on the "Treatment of Wounds and Fractures," by Dr. John Jones, published in 1776, have had a high and enduring reputation.

"Dr. Benjamin Gale, of Killingworth, appears to have been the earliest medical writer in Connecticut. He studied medicine with the distinguished Dr. Jared Elliott, whose daughter he subsequently married. About the year

1750, he published a work entitled 'Historical Memoirs, relating to the practice of Inoculation for Smallpox in the British American Provinces, particularly in New England.' In this work the author advocated the utility of a course of mercury to prepare the system for the disease. This production has been referred to by the celebrated Dr. Huxham, who noticed with favour the practice recommended by the author. Dr. Gale also published some essays in the transactions of the original New Haven County Medical Society. These, with 'Cases and Observations,' published by the same Association in 1788, a work which has been referred to by foreign authors, and which gives a judicious view of the practice of the State of Connecticut subsequent to the war of independence, will, if we include a work on 'Pestilence,' by Noah Webster, LL. D., comprise the main part of our medical literature anterior to 1792."

The use of mercury in the treatment of inflammatory diseases and eruptive fevers, had its origin, we are told, with Dr. Wm. Douglas, of Boston, in 1736. The preparation used by him was calomel.

Up to the middle of the last century, and in some of the more sparsely settled towns, to near the beginning of the present century, the practice of midwifery was left almost exclusively in the hands of females. Dr. James Lloyd, of Massachusetts, and Dr. William Shippen, of Pennsylvania, were the first regular and successful male practitioners of midwifery in this country.

Among the most distinguished American physicians educated in the schools of Europe, who flourished at this early period, were Drs. James Lloyd and Zabdiel Boylston, of Massachusetts; St. Gad. Colden, and Dr. James Ogden, of New York; Drs. John Morgan, Wm. Shippen, Jr., and Benjamin Rush, of Pennsylvania; Drs. John Mitchell and Thomas, of Virginia; and Dr Lining, of South Carolina.

"The first public attempt to communicate medical instruction in America was made in 1754, by Dr. William Hunter, of Newport, R. I. He gave lectures on anatomy in that and the two succeeding years. He was educated under the elder Monro, at Edinburgh; was a contemporary of Cullen, with whom, as with his own illustrious kinsmen, Wm. and John Hunter, of London, he corresponded after his removal to this country. In the year 1762, Dr. William Shippen, who had then just returned from his studies in Europe, commenced a course of lectures on anatomy, to a class of twelve students, in the city of Philadelphia. The same course was continued for the two following years, when, in 1765, he was joined by Drs. John Morgan, Benjamin Rush, and others, in founding the medical department of the University of Pennsylvania."

In the winter of 1768–9, the first course of medical lectures was delivered by the medical faculty of King's College, New York. This faculty included, with others scarcely less distinguished, the names of Drs. John Jones, Peter Middleton, and Samuel Bard.

In the winter of 1780, Dr. John Warren, then a surgeon in a military hospital in Boston, commenced a course of anatomical lectures, which were annually continued until a medical faculty was organized in connection with Harvard University in 1782. But so slow were its beginnings, that for the next eighteen years but nine students were honoured with the degree of M. B., and not one with that of M. D.

"These schools, thus ably organized, were at first not well sustained. Six years after the organization of the New York school, only about twenty-five persons attended anatomical lectures, and some of these were from the West Indies. Not a single name from Connecticut is to be found upon the earlier catalogues of any of the institutions just referred to. It should be borne in mind, however, that the first medical honours were bestowed upon but few, and that even at a later date, they were much less sought after than at present."

"The medical students of Connecticut, prior to the organization of the State Medical Society, had no other than private medical instruction. There were, it is true, some competent and highly popular medical teachers scattered through the State, by whom large numbers of our young men were successfully educated. Among the most eminent were Dr. Jared Elliott, of Killingworth, who has justly been regarded as the father of regular practice in Connecticut; also, Dr. Jared Potter, of Wallingford, himself a student of Dr. Elliott, who for many years kept a medical school, in which several of the most distinguished physicians in the State were educated, Dr. Lemuel Hopkins, of Hartford, being of the number. Another, scarcely less prominent, was Dr. John Barker, of Franklin, who was the first President of the New London County Medical Society, organized in 1784, to which office he was annually re-elected to the time of his death, in 1791."

"New Jersey is entitled to the credit of making the first attempt to improve the condition of the profession by means of social organization. As early as 1766, the profession in that State formed a voluntary association, which continued in successful operation till 1775, when its meetings were interrupted for a time by the military operations in that colony. This society did not obtain an act of incorporation till 1790. The second important movement in this direction was, as we have seen, in Massachusetts, when, in 1781, she received an act of incorporation for her State Medical Society. The next State society was in New Hampshire, which was chartered in 1791."

The address of Dr. Woodward is followed by a very elaborate dissertation on the *therapeutical application of the seton*, by Dr. Rufus Barker, of Deep River. We cannot follow the writer throughout the series of facts and arguments he presents, nor the practical lessons he deduces from them. The following are the general conclusions at which he has arrived in respect to the curative powers of setons, issues, rubefacients, etc. 1st. That, when in cases of inflammation, the indication is to produce revulsion or counter-irritation, those articles should be selected which produce no stimulating effect on the deep-seated organs by absorption, but act directly and solely on the parts to which they are applied, such as the seton, actual cautery, hot water, etc. 2d. That, in diseases of mucous tissues, tubercular depositions, and all inflammations of an asthenic character, counter-irritation is to be produced by those articles from which a greater or less amount of acrid principle will be absorbed. Dr. B. thinks it more than probable that issues, by their stimulant effect upon the terminal lymphatics of the skin excite the glandular and lymphatic systems to a healthy action, and thereby prevent the formation of scrofulous matter in the system. 3d. That, if disease is produced by faulty nutrition and excretion, whereby morbid matters are retained in the blood, and act as poisons, or are deposited on some imperfectly nourished organ, producing in it destructive inflammation, the leading indication is to remove this morbid matter from the system, and facts abundantly prove that a suppurative discharge or drain from the circulation does, very often, effectually and speedily fulfil this indication.

It is very certain that, in the course of his dissertation, Dr. B. has emitted many very excellent therapeutical precepts; these, however, are mingled with others that are either based upon hypotheses of very doubtful validity, or are inconsistent with generally received and well-established views in respect to the nature of certain forms of diseased action, and the means best adapted for their removal.

A well digested report on the sanitary condition of Hartford County, during the year 1858, is presented by Dr. A. W. Barrows. Though replete with interest to every physician within the county to which it refers, the report contains few facts and principles of interest to the profession generally.

In the report from the same county for 1857, attention was directed to the fact that the percentage which the deaths from consumption bear to the entire mortality, in the towns bordering upon the Connecticut River, with the exception of Hartford, was nearly or quite double to what it was in the more hilly portions of the county; during 1858, however, a very different result is exhibited, the percentage of deaths from consumption having been greater for the towns remote from the river, than for those bordering upon it.

In Southington, we are told that "by far the most prevalent disease is consumption;" it having been the cause of *one-third* of the deaths which occurred in the town during 1858. The following are assigned as the causes of the extensive prevalence of the disease in this portion of Connecticut; namely: 1st. Hereditary predisposition. 2d. Climate. 3d. Intemperate living; with the remark, that the last is doubtless the most common of the exciting causes of consumption, as it is of disease generally.

A report from the New Haven County Medical Society announces and deplores the entire failure of an effort that had been set on foot to induce the physicians of the county to preserve, according to a prescribed uniform system, and in blanks furnished to them, a correct register of all the diseases and accidents attended by them, together with their respective results, with a view to the formation of a sufficiently extended and authentic series of medical statistics for future reference. Could such a registration as that contemplated by the New Haven Society be effected, it would be possessed of a value which even they would recognize who now, by withholding their individual efforts in carrying it out, prevent its accomplishment.

A poem is next inserted, which was read by Dr. H. W. Painter, before the New Haven County Society, as a substitute for a scientific paper he was expected to present. The poem has more than one good point, but still we must say that we hold it to be sadly out of place where it now appears—in the midst of the published professional transactions of a State Medical Society.

The history of a case of complete laceration of the perineum, occurring during labour, in consequence of mismanagement on the part of the attending physician, and successfully operated on at the end of nearly thirteen weeks from its occurrence, by Dr. Orson Wood, by properly preparing the cicatrized edges of the rupture to enable them to unite when approximated, destroying the disturbing influence caused from the action of the sphincter ani muscles by its complete division, retaining in contact the ruptured parts by means of the quilled suture, and applying continuously the cold water dressings to the entire and perfect consolidation of the parts, which occurred at the end of two months from the period the operation was performed. The case is throughout one replete with instruction. An abstract of it would, however, scarcely convey a fair idea of its peculiar features, and of the exact nature and propriety of the operation instituted by Dr. Wood, with the after-treatment, etc., while it would occupy too much space to insert the entire history of the case and operation given in the Transactions.

Biographical notices next follow of four of the deceased members of the society. After this we have two appendices, the one being a preamble and resolutions, adopted by the Medical Society of the city of Hartford, affirmative of the claim of Dr. Horace Wells, as the discoverer and demonstrator of the use of anæsthesia in surgery; the other, a memorial to the Legislature of Connecticut in reference to the proper treatment of insane inmates of the prisons.

D. F. C.

ART. XXIII.—*Reports of American Institutions for the Insane.*

1. *Of the Vermont Asylum, for the fiscal year* 1857–8.
2. *Of the New York State Asylum, for* 1858.
3. *Of the Bloomingdale Asylum, for* 1858.
4. *Of the King's County (N. Y.) Asylum, for the fiscal year* 1858–9.
5. *Of the New Jersey State Asylum, for* 1858.
6. *Of the Mount Hope Institution, for* 1858.
7. *Of the Western Asylum of Kentucky, for* 1856 *and* 1857.
8. *Of the Indiana Hospital, for* 1858.
9. *Of the Illinois State Hospital, for* 1857 *and* 1858.
10. *Of the State Hospital of Missouri, for* 1857 *and* 1858.

1. THE new building for the *Vermont Asylum for the Insane*, which was in course of construction at the time of the annual report for 1856–7, has been completed, and is said to be greatly superior to the original edifice.

The barn belonging to the establishment was burned on the fifth of December, 1857, and the fine stock of the farm, consisting of twenty-nine cattle, were destroyed. It is supposed to have been the work of an incendiary.

The farm has been increased by the purchase of a considerable tract of adjacent land.

	Men.	Women.	Total.
Patients in the asylum, August 1, 1857	192	221	413
Admitted in course of the fiscal year	89	68	157
Whole number	281	289	570
Discharged, including deaths	74	81	155
Remaining, August 1, 1858	207	208	415
Of those discharged, there were cured			80
Died			39
Whole number of patients, since opening			2869
Discharged, recovered			1366

Dr. Rockwell makes some brief remarks upon the utility of manual labour as a restorative agent, in which he says: "Whether the patients will cheerfully employ themselves depends, in a great measure, upon those who have the care of them. So much depends on the qualifications of the attendants, that too much caution cannot be exercised in their selection."

2. Those portions of the edifice of the *New York State Lunatic Asylum* which were destroyed by fire, in July, 1857, have been thoroughly rebuilt, with every practicable safe-guard against the occurrence of a similar disastrous accident. "The general sympathy and prompt aid extended toward the institution, and its early restoration, have enabled us," remarks Dr. Gray, "to pursue its objects with the least possible embarrassment, and with satisfactory results."

	Men.	Women.	Total.
Patients in the asylum, Nov. 30, 1857	238	213	451
Admitted in course of the fiscal year	172	161	333
Whole number	410	374	784
Discharged, including deaths	150	132	282
Remaining, Nov. 30, 1858	260	242	502

The subjoined analysis of the cases admitted is such as ought, for the full elucidation of the nature of the disorder, and of the results of hospital treatment, to accompany the record of admissions in every annual report emanating from institutions for the insane. Who, without some exposition of the kind, can ever arrive at an opinion bordering upon accuracy, of the actual curability of mental disorders?

"Of the 333 admitted, 44 were readmissions. Of these, 32 for the second, 8 for the third, and 4 for the fourth time. Twenty-six of the readmissions have, at various periods during the past 16 years, been discharged recovered. The 26 were insane and under treatment an aggregate time of 37 years, and since the first attack, well and discharging the duties of life, an aggregate period of 159 years; showing that even in cases of reattack there is much to reward care and treatment, and to inspire hope both in the afflicted and in their friends.

"Of the 32 received for the second time, 20 were acute and 12 chronic cases. Of the 8 received for the third time, 4 were acute and 4 chronic; and of the 4 received for the fourth time, 2 were acute and 2 chronic cases. The 4 acute cases which were admitted and discharged three times as recovered, were insane at long intervals, and each attack was consequent on the breaking down of health from hard work, loss of sleep, and the debility following acute diseases. The aggregate of the attacks and treatment in these 4 cases was 6½ years, and the aggregate of health, from the first attack, 37½ years."

Causes of death.—Phthisis pulmonalis, 6; exhaustion from mental disorder, 13; general paralysis, 4; old age, 2; meningitis and softening of brain, syncope, suicide, abscess, paralysis, and typhoid pneumonia, 1 each.

In one of the cases terminating fatally from phthisis, "the exacerbations of pulmonary disease were characterized by a corresponding improvement in the mental condition."

In each of the four cases of general paralysis "the disease existed from three and a half to four years; in three, the hesitancy and thickness of speech peculiar to the disease being the first recognized symptom."

"Three of these cases were residents of the asylum from the commencement of the attack of paralysis. The mental impairment became most prominent, and the characteristic delusions more marked about eighteen months before death. General exaltation of the imaginative faculties, and physical impairment and more manifest paralysis were ushered in by epileptiform convulsions. In two of the above cases the assigned exciting cause was intemperance and debauchery. The third had always been a sober and exemplary man. Of the earlier history of the fourth case, comparatively little is known, except that his habits were temperate, and his disease was excited by domestic troubles. He was seventy years of age, and lived but a week after admission."

The case of suicide was that of a woman who had been discharged recovered from a first attack of insanity, in which she had exhibited no suicidal propensity. "Several months after her readmission she was visited by her husband, who, in conversation with her, unguardedly expressed much disappointment at not finding her improved. On the same night she committed suicide by suspension."

In the following extract Dr. Gray treats of the causes of mental disorder which were greatly augmented and more widely prevalent than usual during the period included by his report:—

"Two remarkable and important events have marked the social history of our State and country during the past year; the financial panic, and the great religious awakening. * * * The panic has not largely increased the number whose insanity is assigned to "business perplexities."[1] For the six years previous, the average from this cause was nine and two-thirds; that is, for 1852, 7; 1853, 12; 1854, 15; 1855, 11; 1856, 10; 1857, 3. These figures show much uniformity for the past seven years, with the exception of 1857, a year of unusual seeming prosperity. The financial crisis, during its height, undoubtedly increased the number of suicides from causes unconnected with insanity, but this soon passed off, and its morbid effects upon the public mind were exhibited in other and secondary causes, such as intemperance, excessive labour, and in some cases, perhaps, in religious excitement; as it is well known, there has been an intimate relation of cause and effect in the healthful operations of the two events.

"The present revival has been peculiarly free from certain characteristics of former ones, and from the highly-wrought and extravagant appeals to the passions, the hopes and fears which have marked various epidemics of religious fanaticism. Although the number of cases in which religious excitement is the assigned cause, falls much below that reached by Millerism, spiritualism, etc., during the prevalence of those epidemics, it is further to be said that in at least one-half of the former, loss of sleep and mental exhaustion were the causes of insanity in persons already church-members, engaged in behalf of others, but themselves under no special excitement or concern. In nearly all the other instances included under this cause, as, indeed, under most of the so-called causes in the list, it is to be remembered that the agent is a purely exciting, rather than an efficient one, operating upon already prepared and smouldering elements of disease. It is also remarkable, and illustrates the absence of dogmatic and denunciatory tendencies in this revival, that no case of melancholia is among the number assigned to this cause."

Notwithstanding the conflagration before mentioned, and the inconveniences and embarrassments necessarily attendant upon the reconstruction of that portion of the edifice which was destroyed, the extensive measures for moral treatment long since adopted at this institution—the manual employment, the fairs, the musical, theatrical, and other entertainments—have been continued as heretofore.

Patients admitted from Jan. 16, 1843, to Dec. 1, 1858	5.516
Discharged recovered	2.226
Died	636
Not insane	39

According to the report before us the county superintendents of the poor, in the State of New York, have for several years "held annual conventions to consider the condition and wants of the poor and insane, and by unanimous voice have declared the policy of keeping lunatics in the county houses, and associated with the ordinary paupers, at variance with justice, humanity, and public economy. They have also memoralized the legislature on the subject, and a few months ago, at an annual State convention, reaffirmed their experience and opinions against the receptacles, and appointed a committee to attend and represent to the legislature the condition and wants of the insane poor, and urge the speedy erection of suitable asylums for all the insane requiring special care or treatment.

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[1] The number in 1858 was 12.

"The good results of this movement on the part of the superintendents of the poor, and the investigations of the senate committee into the state of county houses and receptacles for the insane, are continually coming to our notice. These buildings have, in several instances, been made more comfortable and commodious, and are constantly gaining in a spirit of liberality and humanity of management."

Another no less creditable and worthy movement of these superintendents of the poor, is that of urging the passage of a law "directing the removal of all dependent children from the poor-houses to orphan asylums," where they may be properly educated. As an evidence of the necessity for some statute provision of this kind, Dr. Gray says: "The number of persons coming under our care and destined to continue a public charge during life, whose history from childhood reveals that their insanity is owing to their being neglected while orphans, vagrants, or intemperate, or worse than neglected by being confined in idleness, and amidst immoral associations, is sufficient to afford a subject for extended discussion."

3. The record of the *Bloomingdale Asylum*, for the year 1858, furnishes the following results:—

	Men.	Women.	Total.
Patients at the beginning of the year	67	79	146
Admitted in course of the year	55	57	112
Whole number	122	136	258
Discharged, including deaths	59	54	113
Remaining at the end of the year	63	82	145
Of those discharged, there were cured	17	17	34
Died	4	7	11

Causes of death.—Pulmonary consumption, puerperal mania, exhaustion of acute mania, suicide, gradual exhaustion in an aged patient, prostration after typhoid fever, apoplexy, epilepsy, general paralysis, dysentery, and disease of brain attended by convulsive paroxysms, one each.

Dr. Brown remarks that, to the pecuniary disasters of the past year, "is to be attributed the untimely removal of a large proportion of the patients discharged without recovery, or even without decided benefit. * * * Of the thirty-four patients who left improved, but seventeen were regarded as favourable for treatment at the time of admission, and of these eight recovered at home after leaving the asylum."

Gas, for lighting the apartments, has been introduced. "By donations from members of the asylum committee the walls are being decorated with a class of pictures and engravings rarely seen in such apartments."

4. The rapid increase of the population of Brooklyn, New York, has been accompanied by a corresponding augmentation of patients at the *King's County Lunatic Asylum.* If we mistake not, it is but about fourteen years since the first building, separate from the general almshouse, was erected for the insane. Four or five years ago, that was abandoned for a new and much larger edifice. It was not long before it became necessary, from the increase of patients, to place a portion of them in the old building; and now both are occupied to their utmost capacity. The enlargement of the new asylum, by additions which will complete the original design, is recommended in the report under notice.

	Men.	Women.	Total.
Patients in the asylum, July 31, 1858	108	160	268
Admitted in course of the year	93	94	187
Whole number	201	254	455
Discharged, including deaths	79	86	165
Remaining, July 31, 1859	122	168	290
Of those discharged, there were cured	39	47	86
Died	12	8	20

Dr. Chapin discusses the effects, as generative causes of mental alienation, of the modern system of education, and of the excessive strain upon the intellectual powers of adults, to meet the exigencies of the general style of living at the present day. The substance of his remarks has already been given, in our quotations from the reports of other similar establishments. He treats, however, another subject which, so far as we recollect, has not engaged the pen of any other superintendent, in his annual reports. We allude to the effect of the adulterated liquors now so extensively used. It is to be hoped that we shall have the results of observation at other institutions of the kind, in regard to this matter.

"Intemperance has long been recognized as one of the most prolific causes of insanity, but the impure wines and liquors in common use at the present day, have increased the prevalence and somewhat changed the character of this form of mental derangement. Probably but a small portion of the community have any conception of the extent of the comparatively modern iniquity of adulterating alcoholic stimulants, and the ascendency such adulterations have gained over pure liquors, in destroying the health, and the moral character, and the mind itself of persons addicted to the use of intoxicating beverages. It is not alone those known as fast men, inebriates, that are exposed to these dangers, but the light drinkers, the moderate men—who indulge only occasionally in stimulants—are also liable to be deprived of their senses at any moment, or to become so unnaturally excited, or depressed, or confused, as to be impelled to drink to excess, and madness is often the speedy or more remote result. Patients are sometimes brought to the asylum, presenting the appearance of having been intoxicated for weeks; but, upon subsequent inquiry, it is found that they had been pursuing their avocations up to a few days previous with sober regularity. Some of them, perhaps, were addicted to occasional frolics or sprees, and the result is less surprising to their friends than the suddenness of it. Others were never known to be under the influence of, much less incapacitated by the use of liquor. Not unfrequently the unfortunate persons have wandered from their homes, and nothing can be ascertained of their history or former condition, as they are seldom able to give any reliable account of themselves. The officer charged with their commitment, has found them in some station-house or jail, where they have tarried for a longer or shorter period, until the fact of their insanity could be legally established. While in these places, they are often represented as having conducted themselves in the strangest manner, cursing and praying alternately, tearing their clothing, mutilating their persons, quarrelling with those who would administer to their necessities; in short, raving maniacs indeed, such as old times' descriptions and some modern imaginations make every insane person to be. These more violent manifestations of the disorder are generally relieved in a short time after entering the asylum, and, in fortunate cases, the mind is restored in the course of a few weeks or months. In other cases the excited or paroxysmal stage continues with greater or less vehemence for many months, when reason may slowly return, though often leaving the mental faculties for a long period in a feeble condition. Frequently great mental prostration and depression succeed the excitement generally manifested on entering the institution. This condition is likely to be one of long continuance, and the mental anguish is often so great and unendurable as to impel to frequent attempts at self-destruction. But too often reason is irretrievably lost. This form of mental alienation also frequently terminates in general paralysis."

The institution is gradually enlarging its facilities for the moral treatment of its inmates.

5. The general statistics of the *New Jersey State Lunatic Asylum*, for the year 1858, are as follows:—

	Men.	Women.	Total.
Patients at the beginning of the year	135	144	279
Admitted in course of the year	72	75	147
Whole number	207	219	426
Discharged, including deaths	59	74	133
Remaining at the end of the year	148	145	293
Of those discharged, there were cured	30	32	62
Died	9	7	16
Not insane	1		1

Causes of death.—Exhaustion from acute mania, 4; softening of the brain, 1; erysipelas, 1; general or chronic exhaustion of the system, 3; consumption, 3; epilepsy, 4.

"Of the first four deaths it should be remarked that they occurred, as deaths from acute exhaustive mania usually do, soon after admission, the disease having nearly run its course and exhausted the powers of life before the arrival of the patient at the institution.

"In the preliminary treatment of such cases, it should always be kept in mind, that the high mental excitement, attended by extreme watchfulness and desire for muscular exertion, depends on a highly *irritable*, rather than on an inflammatory condition of the system. Hence direct depletion, drastic purgatives, blisters, etc., tend rather to increase than to allay the effect of the primary injury."

Dr. Buttolph relates the following interesting case:—

"Mrs. ———, aged about forty-five, had an attack of derangement in early life, which continued seven years, but from which she recovered quite perfectly, and remained well a number of years, during which she married. In February, 1848, she was admitted to this asylum, having recently had a second attack. She was then in a highly excitable state of mind, and so remained much of the time for nine years, having only short intervals of comparative quiet once in a few weeks. She constantly held the delusion that she was a queen, and that those about her were her subjects. Her speech and motions were rapid, and her habits generally filthy and destructive, especially in regard to clothing. She slept very little at night, and usually passed her time in rearranging the straw in her bed, talking, or rather chattering, pounding, etc. Would sleep or doze for brief periods during the day, often in the sitting posture, which seemed sufficient to prepare for the labour of the next night.

"During the early part of the year, and occasionally before, she had longer intervals of quiet and comparative rationality. In the month of March she had a severe illness, which lasted several weeks, and reduced her to the verge of the grave. This illness was characterized by a feverish state, loss of appetite, flesh, and strength. There finally appeared in various parts of her body and limbs, and about her head, a series of sloughing boils, which seemed the climax of her physical disease. From this state she slowly improved, having only now and then slight indications of her former mental disorder. She remained with us several months after she appeared quite well, to make sure of a permanent restoration. She then left in full flesh, health, and hope, having nearly completed her tenth year in the asylum."

There are more patients at this asylum than at any former period, and more than can be easily accommodated.

	Men.	Women.	Total.
Patients from May 15, 1848, to Jan. 1, 1859	660	717	1377
Discharged recovered	248	281	529
Not insane	1		1
Died	91	89	180

The method of forced ventilation, by a revolving fan, was introduced into the asylum the past year.

6. From the Sixteenth Annual Report of the *Mount Hope Institution*, we take the subjoined numerical exposition of the results in the medical department of that establishment during the year 1858:—

	Men.	Women.	Total.
Patients at the beginning of the year	58	79	137
Admitted in course of the year	58	59	117
Whole number	116	138	254
Discharged, including deaths	56	54	110
Remaining at the end of the year	60	84	144
Of those discharged, there were cured	24	19	43
Died	8	4	12

"Two of the male patients, labouring under febrile delirium, died within three days after admission, and three died of paralysis. A number of the deaths were of patients at an advanced age, one being seventy-two years of age, and another seventy-six."

Besides the foregoing, 21 cases of mania-à-potu were admitted. One of these patients died, and one remained in the hospital at the close of the year. All the others were discharged recovered.

Of the patients received, thirteen had the suicidal propensity, but no one succeeded in effecting his fatal purpose.

Dr. Stokes attributes the failure, in many instances, to resort to hospitals at a sufficiently early period, to a prevalent "ignorance of the incipient symptoms of mental disorder."

We quote from this elaborate report such extracts as appear to us of the greatest value to those for whose information or entertainment we devote these pages.

In the table of causes of mental disorder "ten cases are classed under the head of *oinomania*, or *insane drinking*. It would really appear as if persons affected with this form of *moral insanity*, are at times actuated by a morbid craving for stimulants which they are incapable of resisting. No sooner do they begin to use their old enemy in moderation than their morbid appetite is regenerated, and immoderate drinking, uncontrolled and incontrollable indulgence, plunges them into a vortex which they seem to have no power to escape. They do not drink from the pleasure which the social board affords, nor for the pleasure which the wine gives them, but they will drink any kind of intoxicating liquor; and will drink as often as they can, and whenever they can, and as much as they can. Their craving for stimulants becomes incessant and incontrollable. No considerations of self-respect, no regard for public opinion, or common decency, or domestic ties, or religion, or the certainty of impending ruin, degradation, or even the fear of death, can prevent their drinking till they can drink no longer. In fine, such persons seem for the time to be deprived of the power of self-control, and should be regarded as no longer responsible agents, and therefore proper objects for being restrained, and protected against themselves." * * *

"There is a prejudice abroad that lunatics should not associate with lunatics; and that such mutual intercourse has a tendency to aggravate the disease. This is a fallacy. Nay, strange as it may appear, the delusions under which the insane labour are sometimes corrected and dissipated by the sallies of wit and repartee of their fellow patients. Thus we have observed impressions arise out of incidental conversations, which have at once awakened rational reflection, and suddenly a light has broken in upon the mind, which, like a heavenly ray, has appeared to guide reason *back to her deserted throne*." * * *

"In every asylum there will be found a class of discontented spirits who take an insane pleasure in presenting and describing, with the most exaggerated statement, their wrongs and grievances. In such cases it is extremely difficult to combat or allay, by appeals to patience and resignation, or by the distractions of occupation and recreation, their unfortunate propensity. With some this morbid feeling comes on in paroxysms, and continues for a short time, during which they take every opportunity of diffusing the querulous, captious, and dissatisfied tone of their own mind, to all around. In particular forms of insanity, such as the *manie raisonnante*, for example, of Esquirol, this morbid state of irritability is very remarkable, and such patients only require an uncontrolled access to the different wards to produce an insubordination and dissatisfaction to all within their reach. To indulge such patients in this morbid love for mischief-making is only to promote and aggravate their moral malady. They must be checked and controlled by a firm yet kind, a decided yet parental discipline and government, before a more happy and natural state of feeling and inclination can be restored."

The proprietors of the Mount Hope Institution have decided to erect a new establishment upon a farm of 360 acres, well watered, susceptible of great improvement and embellishment, and situated six miles from Baltimore, on the Reisterstown Road. The edifice will be in the Palladic Italian style, consisting of central building and wings, the united front façade of which will be 580 feet in length. At the time of the publication of the report the materials for one of the wings were in course of preparation.

7. The principal numerical results of the operations of the *Western Lunatic Asylum of the State of Kentucky*, for the two years 1856 and 1857, are as follows:—

	Men.	Women.	Total.
Patients in the 31st of December, 1855 . . .	44	37	81
Admitted in course of two years . . .	61	34	95
Whole number	105	71	176
Discharged, including deaths	47	27	74
Remaining December 31, 1857			102
Of those discharged, there were cured . .	22	16	38
Died	14	4	18

Causes of death.—Pulmonary consumption, 5; congestion of the brain, 3; chronic diarrhœa, 2; enlargement of heart, epilepsy, erysipelas, exhaustion from acute mania, scorbutic hemorrhage, cancer, and pleuro-pneumonia, 1 each.

Dr. Annan ascribes "the general good health of the people, during the past three years, in a great measure to the use of soft water, free from lime, for drinking and cooking." He also states that, "there has not been any suffering amongst the patients for want of a sufficient supply of heat. Stoves, burning coal, have kept the day-rooms as warm as was necessary for comfort; and an abundant supply of bedclothes has prevented complaint during the night. There has not been a case of frost-bitten limbs."

The patient who died with erysipelas was epileptic. "His intellect, however, did not appear to be impaired, but he was irascible, easily excited, and then was inclined to fight. His only delusion was, previous to admission, that every person he associated with was his enemy. On examination of his brain," continues Dr. Annan, "several ounces of serum were found in the sac of the arachnoid membrane, and yellow pus was seen on the surface of both of the posterior lobes of the cerebrum. Between the convolutions of these posterior lobes there were several ulcers of the gray matter, which had destroyed it down to the white medullary substance. The gray matter around these ulcers was softened. Between the convolutions there was some brown semi-fluid matter. The entire surface of the brain was of a pale lead colour. The anterior and middle lobes were sound. No lesion was detected, except the altered colour.

"In this case we have the chief seat of disease in that part of the brain which is supposed to be appropriated to the feelings and propensities, while the anterior portion, the seat of the intellectual powers, was in a comparatively healthful condition. The mental manifestations during life accorded with the appearances after death.

"In all of my examinations, here and elsewhere, either the anterior, or the adjacent parts of the middle lobes of the cerebrum, have been more or less diseased when the intellectual faculties have been disturbed. This, as far as I have observed, has been invariable."

8. The *Indiana Hospital for the Insane* has again got into successful operation, and its report for the fiscal year terminating with the 31st of October, 1858, presents the subjoined numbers.

	Men.	Women.	Total.
Patients at the beginning of the year			71
Admitted in course of the year	160	150	310
Whole number			381
Discharged, including deaths			104
Remaining at the close of the year			277
Of those discharged, there were cured			80
Died			8
Aggregate of patients, 1849 to 1858, inclusive	785	765	1550
Discharged, recovered	361	363	724
Died			116

Causes of death the past year.—Maniacal exhaustion, 2; chronic meningitis, 1; œsophagitis, 1; phthisis pulmonalis, 2; tabes mesenterica, 1; suicide, 1.

"The diseases common to this country during the summer and fall months have prevailed to a very limited extent—so inconsiderable that there have been no deaths from this source."

Dr. Athon's report treats, under separate heads, upon a variety of subjects, most of which, being connected with the construction, improvements, or management of the hospital, are of but local interest. He recommends the enlargement of the building, by the addition of a wing. In the section devoted to the "Intermarriage of Races," he takes the positions that the mulatto is intellectually superior to his African parent, but is not so long-lived as either the white man or the negro; and that the offspring of intermarriage between the negro and any of the copper-coloured races may be, and sometimes is superior to either parent.

Treating of causes, he says: "In those districts where summer and autumnal diseases prevail, we expect, and we certainly find more cases of insanity arising from physical causes, than we do in localities more favourably situated for health; while on the other hand, the same may be said of moral causes, that wherever the intellectual faculties are exercised the most, and wherever enterprise and improvement prevail the most, there we find the greater proportion of the cases of insanity attributable to moral causes."

Of "spiritualism" he writes as follows: "That there are manipulations and mental exercises of an extremely exciting, if not an interesting nature, connected with spiritual manifestations, none, who have witnessed the operations of this sect, will deny. But whether this vaunted mode for communicating with the dead be true or not, it seems to us that we have everything to lose and nothing to gain, by pursuing a subject which in all its phases, presents mysteries doubly mystified by the ignorant and designing. The worshippers at the shrine of this great fanaticism comprise persons of every grade of intellect, from the mere imitators, to those whose minds grasp the cyclopedia of knowledge, and mould and warp the opinions of all who may come within their reach. * * *

"The effect of spiritualism upon the mind and body is almost irredeemably ruinous. The followers of this delusion exhaust in their "sittings," the nervous system. * * *

"The loss of sleep and the exhaustion of the body cause the mind to wander, incoherency supervenes, the "sittings" are persisted in, and these troubles, together with the extraordinary effort of the mind to catch the least tap of some favourite spirit, prove too much for the continuity of thought, the intellect reels, and what was once a rational being, now becomes a raving maniac."

And thus upon the use of tobacco: "Scores of men may and do use this narcotic plant without producing any perceptible effects, either on the mental or physical system, yet there are constitutions upon which it acts as a powerful depressing agent, manifesting its deleterious effects in nervous headache, tremor of the hands, want of appetite, dimness of sight, heartburn, ringing in the ears, listlessness, and inaptitude for any kind of exertion either in thought or deed. Individuals affected in this way become, sooner or later, careless, indolent, incoherent, and eventually insane, it generally appearing in the form of dementia, accompanied with paralytic symptoms."

In the subjoined extract, he touches upon a subject more fully discussed by Dr. Chapin. "We attribute the frequent occurrence of insanity from intemperate drinking to the strychnine, fishberries, and other poisonous drugs used in the adulteration of the various alcoholic preparations."

9. The operations of the *Illinois State Hospital for the Insane*, for the two years ending with the 31st of November, 1858, are thus represented:—

Patients in the hospital Dec. 1, 1856	214
Admitted in the two years	312
Whole number	526
Discharged, including deaths	297
Remaining, Dec. 1, 1858	229
Of those discharged, there were cured	164
Died	42

Causes of death.—Exhaustion from long-continued mania, 18; exhaustion from acute mania, 10; consumption, 6; epilepsy, 3; dysentery, typhoid pneumonia, intestinitis, dropsy, and effects of burns, 1 each.

"In those cases where a resort to the institution is concluded on after many months of ineffectual trial of other means we hear the universal regret expressed that the measure was so long delayed, showing that it is simply a matter of procrastination or an aversion to a step in itself somewhat unpleasant."

Dr. McFarland's report contains but little of special interest to the strictly professional reader. After a detailed description of their recently introduced apparatus for forced ventilation, he thus pleasantly gives the reasons for the necessity of so great a pecuniary sacrifice.

"If air would, like a civil but wearisome guest, rise up and go out when its presence becomes no longer tolerable, we should not have to go far for a remedy. But it is a fact in chemical philosophy that the more depraved the air becomes the less movable it is. A few shifty, fitful, and deleterious air currents let in at the chance openings of a door or a window, or the relief once vainly sought by certain openings left in the walls, fondly termed 'air-flues,' but along which air had no possible inducement to go, are all a mockery if relied on against the slow asphyxiation to which patients in a crowded lunatic hospital are inevitably exposed. The deplorable consequences of this state of existence are but too apparent to the observant physician. * * * The cheek loses its fresh tints, the eye its expression, and the whole countenance bears witness to the physical lassitude that has taken the place of the natural forces of the individual. But it is chiefly in certain latent consequences which do not reveal themselves to the eye, that the slow poison of a vitiated atmosphere shows its operation. Nature becomes imperceptibly disarmed of that conservative force by which the inroad of disease is averted. Fevers, naturally of a mild form, easily pass into the typhoid state; wounds of a trivial nature become erysipelatous; abscesses form without apparent cause, which are slow in maturing and healing; and, in short, that poverty of the constitutional forces which physicians term the 'cachectic state,' sooner or later prostrates the healthiest system."

One of the new wings of the building is completed.

To show how they do things "out west," we quote some items relating to the farming operations at this hospital.

Average stock of the farm, 8 horses, about 30 cows and neat cattle, and something more than 100 swine.

Products in 1858, in bushels, corn, 3,000; potatoes, 1,138; sweet potatoes, 60; tomatoes, 100; apples, 100; onions, 50; beets, 125; parsnips, 50; carrots, 30; cucumbers, 35; peas, 13; beans, 10. Hay, 85 tons; cabbage, 4,125 heads; squashes, 525; melons, 1,077; lettuce, 2,000 heads; radishes, 3,200.

10. In the fourth biennial report of the *State Lunatic Asylum of Missouri*, which embraces the two years ending on the 29th of November, 1858, we find the numbers usually transferred to our columns to be as follows:—

	Men.	Women.	Total.
Patients at the beginning of the two years . .	71	64	135
Admitted in course of the two years . . .	73	49	122
Whole number	144	113	257
Discharged, including deaths	47	39	86
Remaining, Nov. 29, 1858	97	74	171
Of those discharged, there were cured . .	25	20	45
Died	12	10	22

Causes of death.—Ulceration of the bowels, 8; chronic mania, 3; general paralysis, 3; consumption, 2; typhoid fever, 2; general dropsy, menorrhagia, suffocation from choking, and epilepsy, 1 each.

The deaths from ulceration of the bowels were of patients long insane, and, says the report, "might, perhaps, with as much propriety, have been referred to chronic mania. This form of intestinal disorder is a prominent indication of a general failing of the vital powers, and one of the most common terminations of protracted mental disease. If not, therefore, properly regarded as one of its symptoms, it is, doubtless, to a great extent, modified and aggravated by the want of healthy innervation."

We shall pass over some things which we otherwise might have noticed in this report, in order to present, unabridged, to our readers the following most excellent remarks by Dr. Smith, upon the subject of moral treatment:—

"I am persuaded we need, in most of our institutions, more of what Dr. Conolly has termed proper 'individualized' treatment; in other words, the influence of the sane mind acting beneficially upon the insane—when officers and attendants, in their daily intercourse with patients, impress upon them the influences of their own characters with a tact and skill that result in their improvement. Every insane person has his peculiarities, which require an adaptation of moral treatment, and hence the necessity of those whose duties bring them in immediate contact with the bereft of reason, first familiarizing themselves with the distinguishing characteristics of each. They should have largely developed the organ phrenologists term 'human nature,' which gives its possessor the power, almost at a glance, to discern the prominent traits of others, and the ability to adapt himself to them.

"How far we should resist the delusive opinions of the insane, has given rise to some difference of opinion. With few exceptions, all agree that it is never proper to elicit the expression of a patient's hallucinations, but, on the contrary, a prominent indication to remove, as far as practicable, every cause of perverted feelings, and excite those of a pleasant and antagonistic nature. A certain writer has truly said, 'A morbid thought not expressed, like a morbid feeling not expressed, will often fade away by the kindly influence of time.' It is also equally true, that any habitual state of feeling is increased and strengthened by permitting its free expression. How important, therefore, the indication in moral treatment, instead of eliciting, to repress the expression of a patient's delusions by gaining his confidence, fixing his attention, and presenting new and interesting subjects for reflection, that will stimulate to healthy thought, and divert from self-contemplation, until new trains of ideas become the habit of the mind, and the subjects of delusion, by imperceptible degrees, cease to exercise their dominion.

"There are some patients, however, who persist in obtruding their hallucinations upon notice so directly and pointedly, that dissent or acquiescence is unavoidable. In such cases, if regarded among the curable, I doubt not, as Dr. Bucknill, the distinguished English writer, has remarked, the only proper course is a positive denial, without assigning reasons. Whether the denial should be expressed in words or demeanor, would depend upon the disposition and excitability of the patient. No undertaking would be more futile than the effort to drive the insane from their delusions by arguments. They cling to them with a tenacity and steadfastness that time, death, or recovery alone will remove. A convalescent patient once said, 'No one who has not been insane can imagine how terribly real the delusions of lunatics are.'

"There are comparatively few cases where the necessity arises for direct antagonism to the delusions of the insane, and especially when the officers and attendants possess that degree of skill, tact, and ingenuity, so essential to the triumph of moral influences."

The doctor thus discourses upon the subject of corporeal restraints: "I believe the period is not far in the future, when, with properly constructed buildings, the means for useful and varied employment, amusement, and mental occupation, will be so far increased, that, in connection with skilful, individualized treatment, it will be, comparatively, easy to abandon all mechanical restraint, and at the same time avoid protracted seclusion, equally, if not more objectionable. All well-conducted institutions are now evidently tending to this result, the consummation of which would constitute an additional triumph of science and philanthropy, worthy of the present age."

The asylum has been so crowded with patients that additional accommodations have been found necessary, and a new wing is in process of construction.

P. E.

ART. XXIV.—*An Introduction to Practical Pharmacy.* By EDWARD PARRISH, Principal of the School of Practical Pharmacy, &c. Second edition, with two hundred and forty-six illustrations. Philadelphia: Blanchard & Lea, 1859. 8vo. pp. 720.

WE welcome with pleasure this addition to our medical literature, and cordially commend its careful perusal to the junior members of our profession, whether practising in the cities or in the rural districts. To the latter, indeed, it is more particularly adapted, as it offers them the guidance of an able pharmaceutist who describes, in plain and simple language, the various processes and manipulations required in the preparation of medicines for the use of the sick. Most practitioners have felt at different periods of their professional career, and especially at its commencement, their unskilfulness and want of dexterity, whenever circumstances have compelled them to compound their own medicines. The work before us is specially designed by its author for the relief of such difficulties.

Part I. is devoted to the consideration of preliminary matters, such as the description of the various kinds of bottles, of weights and measures, and of specific gravities.

In Part II. we are introduced into the mysteries of pharmacy; so far, at least, as they are concerned in the manufacture of preparations. This portion of the work has strong claims upon the attention of the pharmaceutic student. In it the officinal preparations are arranged in groups; and under each head are embraced such unofficinal articles as have stood the test of time, or have been recently introduced into professional notice; the whole being preceded by practical instructions, and each particular group having the peculiarities of its manufacture carefully explained. As examples of the author's mode of treating his subject, we select the chapters on "Displacements" and on "Tinctures."

In these the different presses and vessels which are employed in exhausting the drug are first described; then follows an explanation of the process, with remarks on the methods of conducting it; and, lastly, the difference in results, determined by the nature of the materials operated on, is carefully explained.

The tinctures are divided into three classes: in the first, the menstruum used is diluted alcohol; in the second, it is alcohol; and in the third, it is the aromatic spirit of ammonia. A further subdivision into groups is made, but in this, we think, the author has not shown his usual skill; for no leading rule, whether pharmaceutic or therapeutic, seems to have been adopted.

Tinctures are grouped together which correspond in a single point, although differing in other and more important characters. Among the unofficinal tinctures at the end of the chapter, those of arnica, matico, strychnia, and Indian hemp, and the aromatic tincture of rhubarb, Dewees's tincture of guaiac, and Flemming's tincture of aconite, are introduced.

Part III. is devoted to the consideration of the relations of pharmacy to organic chemistry. Much labour has evidently been bestowed upon it, and the most important articles of the respective groups of organic products are arranged in a "syllabus" or tabular form, thereby facilitating the work of reference or comparison.

Part IV. points out the relations of pharmacy to inorganic chemistry, and furnishes to the compounder valuable formulas for the preparation of the phosphates, of the hypophosphites, and of numerous other salts which have been recently discovered or introduced.

Extemporaneous pharmacy forms the subject-matter of Part V. Three of its chapters are devoted to "prescriptions," "the writing of prescriptions," and "the art of combining medicines." These important but oft-neglected parts of a medical education are briefly and clearly explained, the author restricting himself to their practical exposition, and thus avoiding the tedious prolixity of the French writers who treat of the same subjects.

The appended prescriptions are designed "to illustrate the several advantages to be attained by medicinal combinations, and the means by which they may be most readily and safely fulfilled."

From the foregoing summary the reader will derive no incorrect idea of the general character of the Practical Pharmacy. Viewed as a whole, we find in it much to commend, and but little to condemn. Being, chiefly, a compilation from standard works of the highest authority on pharmacy, chemistry, and materia medica, it has just claims to a scientific rank; while the practical deductions and observations of the author render it particularly valuable to the practitioners of his art. The style is clear and unadorned, and the language is usually explicit. A close observer, however, is struck with the author's custom of using symbols and contractions instead of writing the words in full. The habit of confounding or compounding the Latin and English languages in prescriptions, insensibly acquired by all who are engaged either in prescribing or dispensing, shows itself frequently in these pages, as in such expressions as the following: "Take of *liquor ammonia*, sufficient." (p. 497.) "℞—Water *q. s.* to make f℥vij." (p. 497.) "Take of *pulv. pil. hydrarg.* gr. x." (p. 594.) "Take of *cortex pruni Virg. contus.* ℥xij." "Syllabus of *spiritus.*" (p. 267.) "*Spt. sal volat.* is a very useful antacid stimulant" (p. 462), &c. &c.

Surely these should not be thus expressed in "A Guide for the Physician," lest our profession continue in its present habit of careless prescription-writing. The third edition will present the formulas as correct in language as they now are in quantities and doses, or we are mistaken in the character of the author.

R. P. T.

ART. XXV.—*Report of the Select Committee appointed to Investigate the Health Department of the City of New York. Transmitted to the Legislature, February* 3, 1859. 8vo. pp. 211. Albany.

No municipal government can be said to fulfil faithfully the leading and most essential object of its organization—to secure the personal safety of the citizen, to promote his comfort, and to minister to his individual well-being generally—which makes no provision for his protection from those influences which tend to destroy his health, reduce his physical and mental energies, and curtail the length of his days, by suitable sanitary regulations enforced, by enlightened and efficient officers appointed for the especial purpose. No community is well governed where the laws ignore what science and experience indicate as the demands of health, and neglect to provide for the means by which human physical infirmities are diminished, and the prolongation of life, of enjoyment, and of usefulness promoted.

What avails it if the citizen be made secure in life and limb from the weapon of the assassin and the assault of the ruffian, if, at the same time, he is made the inevitable victim of an atmosphere that has been rendered poisonous from a neglect on the part of the civic authorities to prevent accumulations of filth, and all sources of filth, the overcrowding of dwellings, the bad construction of public buildings, and the carrying on, in the midst of populous neighbourhoods, of unwholesome trades and occupations—from their neglect to secure free ventilation, the free admission of light, and a thorough system of drainage and sewerage at those points in which they are demanded. How much is the citizen benefited by the ample security thrown around his property by the law, if he is allowed to be continually robbed of his health and vitality, by unwholesome and sophisticated food, by unwholesome dwellings, and by a deficient supply of water for the purposes of cleanliness and cookery, and as a drink.

A wisely planned and judiciously and strictly enforced code of sanitary regulations, is as essential to the physical safety and well-being of the citizen as is the most excellent criminal code that can be devised, aided in its execution by the most efficient police regulations, and the most enlightened and incorruptible magistracy. In some respects it may be pronounced to be even more so, inasmuch as the aggressions upon the person and the property of the citizen, against which the criminal code is intended to provide, are more open, tangible, and appreciable, and consequently more readily avoided and guarded against by each individual than malaria and infection—those unseen, subtle agencies which prey upon his health and jeopard his very being, and which are often generated around him and in his very domicil, silently, slowly, and secretly—the first warning that they are present being when their morbific and deadly agency is exhibited in the production of pestilential disease, and in the mortality which follows in its train.

Few, if any, of our cities can boast of the possession of a sanitary code, the faithful execution of which is adapted to afford to the community the desired security of health, comfort, and life. Some of our larger cities suffer annually, to a degree truly appalling, from the want of such a code. It is true that upon the eve of some approaching epidemic, or when pestilence has made its appearance in the midst of a community, there is immediately set on foot measures which are supposed to be adapted to ward off the first, and to arrest the latter. But these spasmodic efforts for the institution and carrying out of sanitary measures, even when conceived in wisdom and prosecuted for the time being with sufficient vigour, seldom yield any results of a permanently beneficial character. Too generally, the moment the cause for alarm has passed by, the measures are relaxed, and very soon afterwards abandoned entirely. It is only by the unremitting and strict enforcement of sanitary measures that their full conservative agency can be obtained.

It is to be sincerely regretted that, in the cities of these United States, where everything was available for their proper arrangement, that in their original projection, or, at least, in their subsequent extension, more care had not been taken to secure for them the most favourable sanitary conditions, instead of cupidity, recklessness, and folly being allowed free license to transgress every ordinance of civic hygiene—rendering the work of reform, whenever undertaken, one of extreme difficulty, involving an incalculable expenditure of money, and demanding an abatement of nuisances, which, in many instances, from the length of time they have been practised, have come to be esteemed as legitimate rights.

The very decided movements that have been recently commenced in different portions of the United States, especially in her larger commercial cities, towards a methodical and thorough investigation into the condition as to health of the different classes of the community, the causes, if any exist, by which their health and vigour are impaired, and their chances of life diminished, are to be hailed as an indication that the people are becoming awake to the importance of an efficient system of public hygiene to their physical welfare, and that there is now a fair prospect presented of the early inauguration of such a system in every municipality throughout the Union.

Before us we have the report of a select committee appointed by the Legislature, to examine into the provisions and working of the health department and sanitary laws of the city of New York, and to recommend whatever legislation may be found necessary to increase their efficiency.

The committee, in the fulfilment of the duties intrusted to them, instituted at once a searching inquiry into the actual sanitary condition of the different sections of the metropolis, and finding, upon investigation, that the rate of mortality, in proportion to the population, was much beyond that of other large cities of the United States and in Europe, they were next led to examine into the general causes to which this excess of mortality is to be ascribed.

From the concurrent testimony of many of the most eminent physicians and other citizens of New York, given in detail before the committee, it was found that the causes to which the unfavourable condition of health which there prevails, and the excess of mortality beyond that of other populous communities, are mainly attributable, are the overcrowded condition of tenement houses, the want of practical knowledge of the proper mode of constructing such houses, deficiency of light, imperfect ventilation, impurities in domestic economy, unwholesome food and drinks, insufficient sewerage, want of cleanliness in the streets, and at the wharves and piers, and finally, to a general disregard of sanitary precautions, and the total absence of a regularly organized, adequate, and efficient sanitary police.

That the committee are correct in referring the general unhealthfulness of New York City, and the excessive mortality which prevails amongst its inhabitants, to its unfavourable sanitary condition, is very clearly shown by the fact that those wards where cleanliness and free ventilation abound, where the drainage and sewerage are ample, and where the houses are roomy, dry, well lighted, and not overcrowded with tenants, will compare favourably in respect to the amount and character of the sickness that occurs, and the ratio of mortality in reference to population, with any other city, while they stand in striking contrast with the less-favourably conditioned wards. In one of the best of the wards the ratio of mortality in 1827 was one only in every 69.68 of a population of 24,046; whilst in one of the most unhealthy wards, with a population of 13,486, the ratio of mortality, during the same year, was one in every 21.96.

The facts revealed in the report under consideration, and of the general accuracy of which there cannot exist a doubt, render it not at all surprising that so large a portion of the densely-built and thickly-inhabited wards of a city apparently so healthfully located as New York, and in possession, as it is, of all the material elements of prosperity, disease and death should make such alarming inroads upon its population, producing an amount of mortality scarcely equalled elsewhere, and which is constantly on the increase. The committee show, in the course of their investigation, that a very large percentage of the entire population are placed under circumstances, which, if they had been purposely designed to effect their wholesale destruction, could not have been more effective in their operation.

Although the same frightful condition, in a sanitary point of view, which is shown, in the report before us, to prevail in New York, cannot perhaps, with truth, be predicated of any other city in the Union, yet we are very certain that, in all of them, a properly conducted investigation would reveal the existence of many a source of pestilential emanations—many a plague spot where least suspected, and prove most clearly the absolute necessity of a well-appointed code of civic hygiene to insure the safety of all who dwell within their respective limits.

"Great cities are certainly the pride of nations, but they require a paternal control, and all Christian and civilized communities recognize the duty of exercising it. The difficulty has mainly been in devising the mode of using this power judiciously, so as not heedlessly to place restraints upon personal freedom. The aid of science must sometimes be invoked to strengthen and direct the hand of government, and to guide legislation in the duty of providing remedies for existing evils. A due regard for the public health of populous and growing cities calls loudly for the practical application of scientific principles, resulting from investigation into the causes of increased mortality, and of the best modes of prevention. Such investigations are constantly in progress, and it is not the part of wisdom to reject the counsels which they offer."

D. F. C.

ART. XXVI.—*A Lecture on Suspended Fœtal Animation, one of a Course delivered at the University Medical College, New York City, by* J. GAILLARD THOMAS, M. D., Lecturer on Obstetrics.

THIS is a most excellent lecture on a subject of deep interest to the obstetrician. It has been asserted by authorities of eminence, and we feel persuaded that the assertion is founded in truth, that, in every case of simply suspended animation in the new-born infant—that is to say, in every instance where there is no defect of development in any important organ, and where no vital part has received serious injury, either before or during birth—it is possible, by proper management on the part of the medical attendant, to induce respiration, and by so doing secure life and viability to the stillborn fœtus.

The lecture of Dr. Thomas presents a very fair exposition of the nature and causes of suspended animation in the fœtus, occurring during the progress or near the termination of labour, and of the proper course of proceedings to be resorted to in order to rouse the latent vitality of the stillborn infant into permanent activity. He handles the entire subject with particular ability, and in a manner admirably adapted to convey clear and distinct views in respect to it. The distinction of stillbirth into four forms, according to the difference in the cause or causes to which it is due in each case, is no doubt founded in strict truth, still we rather opine that it will not be so easy to make it out with any degree of certainty in actual practice.

Dr. T. divides the cases of stillbirth into those from asphyxia; those from syncope; those from cerebral congestion; and those from cerebral hemorrhage (apoplexy). And he thinks that each of these forms, with a little caution, judgment, and experience, may be distinguished from the others, so as to enable its appropriate treatment to be applied. We much fear, however, that this is true only to a very limited extent—but, at the same time, to an extent sufficient for all useful purposes.

Stillbirth from *asphyxia* is due, according to the lecturer, to non-oxygenation of the blood of the fœtus during the latter period of intra-uterine life, in consequence either of compression of the cord, of severe and protracted compression of the placenta from a spasmodic contraction of the uterus, as takes place especially under the influence of ergot; of hemorrhage from the partial or complete separation of the placenta previously to birth, and finally, of maternal toxæmia.

The condition of an infant born in a state of asphyxia is as follows: duskiness of face; purple and pouting lips; glassy eye; non-flaccid, unyielding limbs. There is either a very feeble or no pulsation of the heart, or an intermittent action, with entire absence of respiration.

According to the lecturer, when, in cases of stillbirth from asphyxia, there is no perceptible action of the heart, little or no hope of resuscitation is to be entertained. This is not our experience; we have known entire recovery to ensue in a very large number of instances where proper measures have been promptly resorted to, and sufficiently long persevered in, when not the slightest pulsation of the heart could be detected.

The measures directed to be pursued in these cases of asphyxia are particularly sound. They are mainly directed to the production of respiration, by removing any mucus accumulated about the fauces of the infant; by slapping it smartly upon the buttocks and chest; by blowing suddenly and violently in its face and mouth, and dashing water upon it with the hand. These failing, we are directed to expose the asphyxiated infant to a draught of cold air, and, while thus exposed, to put at once in practice Marshall Hall's plan of postural respiration. So soon as the action of the lungs is induced, circulation is to be promoted by upward friction of the limbs with the hand, without intermitting the respiratory process, and, when the stagnation of blood in the lungs is disappearing, by the use of the warm bath. An earlier employment of the bath should not be attempted, in consequence of its tendency then to add to the pulmonary congestion, and to increase rather than to promote the removal of the existing state of asphyxia.

Stillbirth from *syncope* Dr. T. attributes to the fœtus being subjected during birth to causes by which a sudden cessation of the heart's action is produced, as compression of brain from overlapping of the sutures of the skull in its passage through the pelvis; loss of blood from rupture of the cord, or an arrest of the supply of blood by compression of the cord: the more unyielding coats of the arteries not allowing them to be so far compressed as to prevent entirely the flow of blood from the fœtus, while the less resisting coats of the veins permitting them to be so far compressed as to prevent a supply of blood being furnished to the fœtus from the placenta.

The propriety of referring the stillbirth, in cases in which the brain has been subjected during birth to inordinate pressure, to syncope is very questionable—it is doubted by Dr. T. himself. The condition of the fœtus is one rather of coma than of syncope.

The symptoms in this form of stillbirth are—paleness of surface, sometimes extreme; flaccidity of the limbs, and a sunken, cadaverous appearance of the face.

The first and most important measure under these circumstances is to establish respiration by the same means as in cases of syncope. The treatment in this and the last form of stillbirth, it is well remarked by the lecturer, is in fact exactly the same, with this addition, that in a child whose pale, bloodless, and wilted look indicates its anæmic condition, the cord should not be cut, and while an assistant promotes respiration, the funis is to be gently striped by the fingers in such a manner as to press all the blood which it contains slowly and steadily into the child's body.

Stillbirth from *cerebral congestion* is referred by Dr. T. to obstruction of the circulation through the vessels of the neck in cases of face presentation; to constriction of the same vessels by the cord, and to compression of the chest in cases of tardy delivery of the shoulders.

The appearances exhibited by the infant in this form of stillbirth are, a dark purple congested condition of the face; puffed and violet-coloured lips; protruding eyes, and general intumescence of the head.

The treatment in such cases is embodied, according to the lecturer, in the following three directions: 1st. Let blood flow freely from the severed cord, to the extent of an ounce or more, as the case may require; 2d. Establish artificial respiration; and 3d. Avoid the warm bath.

Stillbirth from *hemorrhage of the brain* is referred to intense or continued congestion of the encephalic vessels. It may be produced, also, by injury inflicted upon the fœtal head by its being forced, by violent uterine efforts, against some prominence in a deformed pelvis, or by the unskilful use of instruments.

The prognosis in this form of stillbirth is very unfavourable.

Cerebral hemorrhage is to be suspected when, to the symptoms of congestion, there is added a stupid, listless condition remaining after the establishment of respiration, or when an attack of convulsions supervenes, followed, in both cases, after a few hours, by death. In a few cases in which the infant survives, it may continue hemiplegic for many months, and ultimately recover.

The treatment is the same as in stillbirth from cerebral congestion.

Our high estimate of the sound practical sense which pervades the lecture before us, and a strong suspicion that the subject of which it treats is but imperfectly understood by a large portion of the profession, has induced us to deviate somewhat from our usual practice, by admitting a notice of it into a department of the Journal which is intended to be devoted to bibliographs of distinct treatises on subjects embraced in one or other of the branches of medical science.

D. F. C.

Art. XXVII.—*Guy's Hospital Reports.* Edited by Samuel Wilks, M. D., and Alfred Poland. Third Series, Vol. V. London: John Churchill, 1859. 8vo. pp. 391.

The present volume of this valuable publication contains twenty-two original communications, seventeen wood-cuts, and eleven lithographic plates. We shall lay before our readers a full analysis of its contents:—

I. *Contraction of Œsophagus from Corrosive Poison—Gastrotomy.* By J. Cooper Forster.

In the preceding volume of the *Reports*, an analysis of which is contained in the number of this journal for April last, is a communication giving the history of a case of epithelial cancer of the œsophagus, in which gastrotomy was performed by Mr. Forster. That case was not a very proper one for this operation, which, as was then stated, if ever advisable, could be so only in cases where the stricture of the œsophagus is owing to cicatrices, the effect of the action of hot liquids or of chemical agents; and the patient is not labouring under any other serious concomitant affection. The case recorded in the present communication is of this class; the patient, a child about four and a half years old, having swallowed, seventeen weeks before his admission to the hospital, some corrosive poison, supposed to be a solution of potash, or caustic alkali, used for bleaching and cleaning linen. The contraction of the œsophagus was consequent upon the injury induced by this escharotic, and with the exception of this lesion the child was perfectly healthy.

This patient entered the hospital on the 2d of February, 1859, and from that time until the 13th of March, the date of the operation, every effort was made to nourish him by fluids given by the mouth and by means of injections. For the two days preceding the operation he had not swallowed anything, was very exhausted, and appeared to be sinking fast. The operation performed was very similar to that which was done in the case related in the volume of the *Reports*, of which an analysis was given last April, and where the operation was fully described. It was attended, however, with rather more difficulty, principally from protrusion of coils of small intestine distended with flatus. By means of a canula introduced into the opening thus effected into the stomach, nutritive fluids were administered. Nutritive injections were likewise given *per anum*. The patient progressed most favourably until the morning of the fourth day, when, after feeding by the nurse, peritonitis of a fatal character supervened suddenly, and he died from the first shock of the inflammation. The autopsy showed that this peritonitis was owing to a giving way of the sutures, by which the stomach had been held in contact with the abdominal walls, for some of its contents were found within the abdomen lying between the liver and the diaphragm. The external wound in the abdomen had commenced to slough, and the stitches had loosened from their hold. It may be that the nurse, in introducing the tube, employed a little extra force, when the adhesions of the stomach to the parietes were necessarily very slight. It is a question, therefore, Mr. Forster says, whether he should not be induced another time to keep a tube constantly in the stomach for a week or ten days.

The unfortunate termination of this case points out the importance of waiting to open the stomach until adhesions have been formed between it and the walls of the abdomen. The necessity of this precaution was spoken of in the notice made of the case previously reported.

This communication is accompanied by a plate, showing the place of the incision in the abdominal walls.

II. *The Injuries and Diseases of the Nervous System.* By Thomas Bryant.

It is the intention of the author of this paper to illustrate, in a series of articles, the surgery of the different regions of the body, from cases that have occurred in Guy's Hospital. As he very truly says: "By giving the material from which facts and principles are deduced the author and his readers are placed upon a par, and the latter are enabled to verify the truth of the former's opinions." Knowledge acquired in this method is attended with peculiar satisfaction, and is more relied upon and practically used than that imparted in any other.

The present paper includes injuries to the skull and spine, with their contents, briefly noticing, also, some of the diseases. The cases quoted therein have all been under the author's personal observation, and have taken place within the last five years in his own practice and that of his colleagues. They are, moreover, taken from his own notes. He says: "It will be my aim to illustrate the principal injuries which may take place, to give examples of each form, and to point out the symptoms by which each may be distinguished; to indicate by cases the complications which are generally found, and the pathological conditions and symptoms with which these complications are connected; and, lastly, the principles of treatment will receive attention, and the practice which should be employed in the various conditions illustrated by the quotation of examples." The whole source from which this material is drawn is thus tabulated—

	Cured.	Relieved.	Died.	Total.
Scalp wound	116	. .	. .	116
Concussion of the brain—simple	56	. .	. .	56
Concussion of the brain—complicated	24	. .	2	26
Fractures of the vault of the skull	12	. .	31	43
Fractures of the vault of the base	12	. .	18	30
Apoplexy with injury	. .	. .	4	4
Concussion of the spine	22	. .	. .	22
Dislocation of the spine	. .	. .	6	6
Fracture and dislocation	. .	3	15	18
Lateral curvature of the spine	. .	5	. .	5
Diseased spine—cervical	. .	15	. .	15
Diseased spine—dorsal and lumbar	. .	19	. .	19
Spinal abscess—cervical	. .	1	. .	1
Spinal abscess—psoas	. .	22	3	25
Spinal abscess—lumbar	. .	18	2	20
Spinal abscess—gluteal	. .	1	1	2
Spinal paralysis	. .	11	6	17
Total	242	95	88	425

The wounds of the scalp were all treated by sutures, strapping, pads of lint, or warm water dressing. Erysipelas, which has been regarded as a frequent complication of these wounds, occurred in but two instances. In these the application of flour to the head was the only local remedy; iron and stimulants were given internally. In one of the cases suppuration beneath the scalp took place, and a small piece of bone was subsequently exfoliated upon the fiftieth day.

The subject of concussion of the brain is considered under two heads:—

1st. *The simple form,* where an interruption only of the functions of the organ follows the injury.

2d. *The complicated form,* where the brain itself is injured, and associated with extravasation of blood, either upon or within its structure.

It must not be supposed, from this division of the subject, that Mr. Bryant is one of those who believe that an alteration of the functions of the brain does not necessarily involve any change of its structure. On the contrary, he does not doubt that in all cases of injury to the nervous centres, producing a suspension or alterations of their normal action, there is and must be some change in the structure of the brain or spinal cord, although that change may be overlooked by the naked eye. The *cases of paraplegia,* recorded by Dr. Gull in the preceding volume of the *Reports,* particularly Case XX., show how abnormal conditions of the nervous centres are rendered very evident by the microscope, when, without its aid, it would be impossible to detect them. *Complicated* cases of concussion, as they are called by Mr. Bryant, or those where the brain is evidently injured in its structure, are, in reality, cases of *contusion* of the cerebral structure, and there would be considerable advantage in classifying them, as Dupuytren has done, entirely apart from the others.

Of each form of concussion a number of interesting cases are given. In these, hemorrhage from the nose and ears and into the eyelids often occurred. When from the nose, the bleeding, as a rule, appears directly after the receipt of the injury and soon ceases; when from the ear it may continue for some few hours and then subside, but it is never followed by the clear serous discharge which is found in cases of fractured bone. When hemorrhage takes place into the eyelids it may be the result of a direct blow, but it is frequently produced by the concussion; the blood, however, will be confined to the eyelids, and will not appear as a subconjunctival ecchymosis as is seen in fracture of the base through the orbital plates.

In a number of instances of the simple form of concussion, after a partial return to consciousness, there was a relapse, and the patient returned to his insensible condition. This condition is denominated by Mr. Bryant a "relapsing unconsciousness," as adequately expressing the exact condition of affairs. It is so very generally, so universally, styled one of compression of the brain that Mr. Bryant might very well have given his reason for not making use of this expression. It would appear to be produced by the earliest effects of reaction, the increased quantity of blood pressing upon the brain and inducing a comatose or semi-comatose condition. In some of the cases the reaction was excessive, and complications evidently dependent upon inflammatory action manifested themselves. In these gray powder and Dover's powder, in three grain doses, were given three times a day.

Of the complicated form of concussion several cases are related in detail, with the condition of the brain as found at the *post-mortem* examination. In one "the brain was bruised all over, especially towards the anterior lobes, and upon its upper surface; and at its base the anterior and middle lobes were likewise ecchymosed. Blood also was extravasated at these injured spots. The fluid in ventricles was of a pinkish colour, and the parts around were ecchymosed." In another case there was, moreover, a layer of blood universally diffused over the whole surface of the brain. The action of *contre-coup*, in bruising the brain at a part corresponding to that portion of the head which was directly opposite to the one whereupon the blow was received, was very evident.

One of the cases is of great interest from its medico-legal bearings. A man, 56 years of age, when descending a ladder, fell from a height of thirty feet, striking his head in the descent against a projecting wall. He died on the second day with symptoms of violent contusion of the brain. At the autopsy, no fracture of the cranial bones was found; "at the base of the brain the arteries were in shape and quite rigid from disease, and in the substance of the hemispheres *were several points of extravasated blood about the size of peas.*" The heart was hypertrophied, and the left valves thickened. The kidneys were coarse and granular. Now, in this case, it may fairly be questioned, whether the man fell as a consequence of an apoplexy, or whether the extravasation of blood was the result of the fall. A number of doubtful cases of this kind are given in a communication from Dr. Wilks, contained in this volume of the *Reports*, which will presently be considered.

Fractures of the cranium are divided by Mr. Bryant into several classes as follows:—

A. Fractures of the skull unassociated with any encephalic complication.
B. Fractures complicated with simple concussion.
C. Fractures associated with extravasation of blood external to the dura mater.
D. Fractures complicated with extravasation of blood upon the surface of the brain.
E. Fractures associated with extravasation of blood within the cerebral structure.
F. Fractures complicated with depression of bone.
G. Fractures complicated with direct injury to the brain-structure.
H. Fractures at the base of the skull.

Of each of these classes several exemplifying cases are given; as many as twenty-six cases of these different forms of fractures being thus minutely detailed. From their perusal the justness of the division adopted by Mr. Bryant is apparent, for *injuries to the skull are important just so far as they involve the cranial contents.*

Though the effect of the *contre-coup* in producing contusion of the brain was very visible in these cases, in none of them did it produce fracture of the skull. Indeed, a fracture of the skull by *contre-coup* never occurred, according to Mr. Bryant, and we are strongly inclined to agree with him; in the first place, because we find the arguments of M. Aran unanswerable;[1] and, in the second, because we have never seen one, though we have examined several collections for this purpose. Such a fracture is only a continuation of a direct fracture, of a fracture at the point struck.

As indicative of fracture at the base of the skull, hemorrhage from the nose, from the ear, and into the subconjunctival cellular tissue, are symptoms whose significance and value have been much discussed. Of Mr. Bryant's cases, in eight there was hemorrhage from the ears; in all this was followed by a discharge of a serous fluid, and in seven cases associated with paralysis of the facial nerve upon the same side. Two of these cases proved fatal, and in them both the fracture passed through the petrous bone. In three cases there was epistaxis; in one of these the fracture extended across the ethmoid bone; in one, the frontal sinuses were full of blood and fractured; and in the third the tympanum was found full of blood, and the membrana tympani perfect, and, upon careful examination, the lateral sinus of the brain was found to have been lacerated. Subconjunctival hemorrhage occurred in four of the fatal cases, and in one and all the line of fracture extended through the orbital plate.

The source of the serum, or of the colourless liquid, which flows from the ear, and at times from the nose, in cases of fracture of the base of the skull, and which is one of the most important signs of such an injury, is a question of considerable interest. M. Laugier, a surgeon of Paris, was the first to observe this, in 1835, and he, remarking that first blood came away, and afterwards a colourless liquid, supposed that it was the serum of the blood, flowing away after its coagulation. The chemical analysis of this fluid shows, however, that it does not come from the blood or the bloodvessels, for it contains very little albumen, or none at all. The generally received opinion now is, that it comes from the cephalo-rachidian liquid, to which it is similar in chemical analysis, and where the anatomical lesions have been minutely noted, they have been found to be such as to permit this liquid to escape.

In regard to the use of the trephine, some valuable conclusions may fairly be drawn from the consideration of these cases. Simple fractures of the skull, although associated with depressed bone, if unattended with marked symptoms of compression, are to be left alone; as a rule they terminate successfully. When symptoms of compression arise, if the injury be *local*, the bone, Mr. Bryant says, should be elevated. Here we would add that the surgeon should be exceedingly careful that the symptoms are of such gravity as to absolutely require the application of the trephine. In using it, he converts a simple fracture into a compound; he opens, very probably, a collection of blood in the cranial cavity and exposes it to the air, and if the dura mater be torn he opens the arachnoid; such complications expose to very great dangers, as well as does the compression of the brain. When compression of the brain follows a *general injury*, the operation of trephining is useless, if not injurious. Compound fractures of the skull, attended with depression and comminution of the bones, are to be treated by the removal of the loose portions; and if symptoms of compression exist, and the bones cannot be removed without the use of the trephine, that instrument is to be employed, although with great care, as severe injuries to the cranium may recover, so long as the membranes are entire and the cerebral hemispheres uninjured. When, Mr. Bryant says, compression of the brain follows as a secondary result of a *local injury* over the course of the meningeal artery, that is, after an interval of time, when reaction has been established, although no depressed bone may be present, it is probably produced by a rupture of one of the arterial branches; the operation of trephining may then be performed with a chance of success, although it is rare to find a very local extravasation, the blood generally passing downwards towards the base, where the operator cannot reach. One of the cases, the XIX., is the only one in which the patient recovered after such an operation. In this, after the removal of three small pieces of bone—the operation was performed six hours after the receipt of the injury—a small clot of blood was exposed and removed, lying external to the dura mater, which was uninjured. The case was one remarkably suited to the operation, which is one upon which the surgeon cannot place any great hope, in the vast majority of cases, for all the operations practised for the relief of traumatic effusions, in Paris, for a space of more than fifteen years, have, without a single exception, been followed by the death of the patient.

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[1] See his Memoir in the Archives Générales de Médecine for 1844.

There is nothing calling for special notice in what Mr. Bryant has to say of concussion of the spine. As is seen by the table, all of the cases, twenty-two in number, recovered. In the simplest form there is but slight paralysis and loss of sensation of that portion of the body supplied with nerves from the injured centres; in more severe cases there is some retention of urine, from loss of voluntary power over the muscles which regulate micturition; and in still more perfect examples of concussion the paralysis and anæsthesia of the body may be entire, and associated with absolute paralysis of the bladder and all its muscles, allowing the urine to flow from its cavity as secreted. This condition of the bladder, be it remarked, must not be confounded with the involuntary discharge of urine from an over-distended viscus, which is witnessed in the simpler class of cases.

The very grave nature of the next class of injuries in Mr. Bryant's table, is evident from a glance at the numbers attached. Of the twenty-four examples of fracture and dislocation of the spine therein recorded, only three are seen to have escaped with their lives, and these are marked as only "relieved," that is to say, the functions of the cord were not perfectly restored. Dislocation of the spinal vertebra is generally taught to be an accident exceedingly rare; but according to Mr. Bryant's experience, this opinion is erroneous. Of these 24 cases, 6 were cases of pure dislocation of the spine, 3 of fracture, and 8 of fracture and dislocation combined; and the fact in these seventeen cases was verified by post-mortem examination. In the remaining seven cases a fracture was diagnosed, but not proved. As might be supposed, dislocation is much more common in the cervical than in the dorsal region; and in both the upper vertebræ, as a rule, is the one thrown forward. Of these twenty-four cases, the cervical region was affected in ten; the dorsal in fourteen, in one of these three of the upper lumbar vertebræ being also fractured. In reviewing the ten examples of injury to the cervical region, it appears that in two only was life prolonged beyond forty-eight hours after the accident; in one of dislocation between the fourth and fifth vertebræ, with disorganization of the cord, the patient survived but thirteen hours; five lived only thirty-six, and two forty-eight hours. In all these the disorganization of the cord had taken place opposite the fifth or sixth vertebra. In two examples the injury to the spine and cord corresponded to the seventh cervical; one of these lived seventy-two hours, and the second seven days. In all of these cases but two the respiration from the beginning was diaphragmatic, and in these it became so at the expiration of forty-eight hours in one instance, and of ninety-six in the other. Of the eleven fatal cases of fracture and dislocation of the dorsal vertebra, three died on the tenth day, and eight within eighteen days; the other three died, from a gradual sinking and from bed-sores, on the 90th, the 134th, and the 232d days, respectively. In the three cases that recovered, the injury was about the three lower dorsal vertebræ.

Of the cases reported in detail by Mr. Bryant, the two most interesting are mentioned in the analysis given in this journal of the last volume of the *Reports*, having been published by Dr. Gull in his *Cases of Paraplegia*. They are the cases marked as the XXIII. and the XXIV. in that communication.

Mr. Bryant says but very little of the remaining affections of the spine, mentioned in his table, a few lines only being devoted to them, and in these there is nothing calling for notice. Readers anxious for more information upon them, are referred by him "to the standard works upon the subject."

III. *Cases of Ruptured Uterus during Parturition.* By J. BRAXTON HICKS, M. D., Lond., F. L. S., &c.

This communication contains the history of three cases of rupture of the uterus during parturition; in one of which the cervix was lacerated; in another there was a longitudinal rupture, about seven inches in length, extending from just above the os; and in the third the rent was such as to have allowed the child to escape into the peritoneal cavity, where it was found. In other words, there is a case of each one of the three classes into which rupture of the uterus may very properly be divided.

With regard to the frequency of rupture of the uterus, in 12,400 cases of midwifery, collected by Dr. Hicks from private sources, all from thoroughly good practitioners, there occurred only two cases about which there could be no doubt, and two in which there was uncertainty, as no post-mortem examination was made. Since the last septennial report of the Lying-in Charity attached to Guy's Hospital, 8,982 cases were attended by the pupils, and in these only two certain cases occurred, and none suspected. In the three septennial reports already published, there occurred, in 22,498 cases, five certain cases, and five uncertain. This gives a total of 43,800 cases, with nine certain cases of rupture, or 1 in 4,875; or if the uncertain cases be included, 1 in 2,736. Of these all the undoubted cases died; and of the uncertain, six out of seven. In only one did the contents of the uterus escape into the peritoneal cavity.

IV. *Cases of Morbus Addisonii, Melanæmia, Anæmia Idiopathia, Leucocythemia Splenica et Lymphatica.* By SAMUEL WILKS, M. D.

This communication, as its title indicates, is upon several obscure forms of disease, which are, at the present time, exciting much attention throughout the whole medical world. The first case it contains is one of the affection known as *morbus Addisonii*, or disease of the supra-renal capsules. A man, 32 years of age, in an extremely debilitated condition, and with his skin of a dark colour, resembling that of a mulatto, died rather suddenly in the hospital, three days after admission. He had previously, for more than two years, been under observation, and during all this time his colour was the same. At the autopsy all the organs were found healthy or nearly so, with the exception of the supra-renal capsules, both of which were quite destroyed in structure by adventitious deposit. This deposit consisted of an albuminous-cretaceous material, which the microscope showed to be almost structureless; it was an amorphous substance mixed with fatty and cretaceous granules. The colouring matter in the skin was situated beneath the epidermis, in the rete mucosum, following the course of the papillæ, thus exactly resembling the integument of a negro. In a note to this communication, and also in the *addenda*, seven other well-marked cases of a similar character are said to have come under the notice of the author, since the above case was recorded.

In some remarks of considerable length appended to the history of this case of Addison's disease, Dr. Wilks attempts to answer the numerous and weighty objections that have been brought forward against the views and conclusions of Dr. Addison. The most important arguments and facts that have been published in relation to the existence or non-existence of this affection, have been given in the quarterly summaries of the improvements and discoveries in the medical sciences in this journal, and there is very little calling for present notice in what Dr. Wilks here says. It has been shown that supra-renal disease has been found, when there was no discoloration of the skin, and also that pigmentary discoloration constantly occurs without any morbid affection of these organs. In answer to the first of these objections, Dr. Wilks declares that the skin does not become discoloured until the disease has existed a long time, the correctness of which statement additional facts are required in order to prove; and the second objection he does not answer at all clearly—to our mind it remains in all its force. When, moreover, it is taken into consideration that in the lower animals, when the capsules are extirpated without great injury to the solar plexus, the animal continues to live as before; and that, in men, the capsules have been found entirely wanting, as if congenitally deficient, without discoloration of the skin and marked debility during life, we see strong reasons for refusing to believe that there is such a connection as that of cause and effect, between disease of the supra-renal capsules and the symptoms of the fatal malady known by the name of *morbus Addisonii*.

The next article in this communication is entitled *Melanæmia and Discoloration of the Tissues arising from Intermittent Fever.* The observations of a number of physicians have recently shown that at times, in intermittent fever, the blood undergoes a disintegration in the spleen, and the hæmatine from the broken-up corpuscles circulates through the system until it becomes impacted in the capillaries of the various organs of the body, causing them to assume a dark colour. The reasons for supposing that the pigment is formed in the spleen, are, that in the spleen of man and other animals cellular elements inclosing blood-globules or pigmentary matters are often met with, and that pigment is never found in other organs, except also present in the liver and the spleen. The symptoms of the affection are the condition of the blood, resembling that of chlorosis, and the troubles caused in the liver, brain, and other organs, by the obstructions formed by the deposit of the colouring matter. Dr. Wilks has nothing new on the subject of this disease, his article being made up of extracts from the chapter entitled: "The Pigment Liver, or Melanæmic Liver," in Frerichs' lately published work, and of the history of two cases from the second volume of Dr. Bright's *Medical Reports.*

Following this article is the history of a case similar to those contained in a communication entitled: "*Idiopathic Fatty Degeneration, with Remarks on Arcus Senilis,*" in vol. III. of this series of the Reports, of which an analysis was given in this Journal for October, 1859. The same affection is here styled simple or idiopathic anæmia. At the autopsy in this case, no cause could be detected in any of the organs for the great anæmia under which the patient had laboured; there was some fatty degeneration in the heart, as might be expected where an anæmic condition had existed for three years. No mention is made of the condition of the intestinal canal, which might have revealed the cause of the anæmia, for the patient had been subject to diarrhœa during the whole time of her illness.

The remainder of this communication is occupied by the reports of six cases of anæmia accompanying enlargement of the lymphatic glands and the spleen, or *anæmia lymphatica*, and *leucocythemia splenica;* two affections Dr. Wilks believes to be distinct. A full history of the most interesting of these cases, with an abstract of others, and a short account of Dr. Wilks' views thereupon, is contained in the October number of this Journal, 1859.

This communication is accompanied by two plates, one representing the face of the man affected with melasma supra-renale; the other, the diseased supra-renal capsule in its position upon the kidney.

V. *Sanguineous Meningeal Effusion (Apoplexy); Spontaneous and from Injury.* By Samuel Wilks, M. D.

The difficulty, or even the impossibility, of determining, in certain cases, whether an effusion of blood found on the surface of the brain, or in the substance of the hemispheres, is owing to an injury received, or to disease, was very briefly referred to in connection with one of the cases contained in the communication of Mr. Bryant. Of course, in the large majority of cases, both of injury or disease, there is no difficulty in coming to a conclusion as to the nature of the case, for in the former the external parts are affected, while in the latter the mischief is within the cranium. But at times, and in meningeal effusions particularly, both causes mentioned may produce the same effect, and if the patient has been known to have received a fall and to have struck his head, the case must prove a most perplexing one.

Dr. Wilks relates some cases where the effusion was known to be spontaneous; others where a blow had been received; and again, others where the cause was dubious. In all of these cases the immediate cause of death was pressure upon the brain from meningeal apoplexy; the post-mortem appearances being similar in all. Of the spontaneous cases, the patients, who had been some time in the hospital, had Bright's diseases in two instances, and idiopathic anæmia in the third. The two doubtful cases were comatose when admitted;

one had fallen in the street, and was said to have uttered an exclamation referring to his head before he fell; the other, after previously feeling giddy, had fallen, and struck her head against the door.

It is important to be well aware of the occurrence of cases of this kind, not so much on account of the patient, as on account of their medico-legal relations.

VI. *Cases of Poisoning.*

This communication contains an account of the most interesting fatal cases of poisoning that have occurred in the hospital since the publication of the last volume of *Reports*. One was by Burnett's disinfecting fluid (chloride of zinc), one by brandy, and three by sulphuric acid.

The disinfecting fluid[1] was swallowed by a woman, 40 years of age, in mistake for a glass of gin. It remained on the stomach only about ten minutes, when it was vomited up again. A burning sensation was felt in the throat and chest for two or three days, when it disappeared, leaving nothing but an inability of the stomach to retain food. Death ensued at the expiration of fourteen weeks; apparently from simple prostration, due to want of nourishment. At the autopsy, the stomach was found so much contracted as to contain only a quarter of a pint of fluid, and completely perforated in two places by ulcers, one near the cardiac, the other near the pyloric orifice. There was no decided peritonitis. but the whole of the serous membrane had a slightly greasy feel when touched, as if there were some exudation on the surface.

In the case of poisoning by brandy, the patient, a man 27 years of age, had drank his fill from a gutter, into which about a gallon had been poured from a broken bottle. Taken to a station-house in a state of intoxication, the stomach-pump was applied, and emetics administered. The stomach-pump was again applied some hours afterwards on his admission to the hospital, but nothing was removed. He was then cold, collapsed, and unable to swallow. He died twelve hours after admission, and twenty-two after the debauch. At the autopsy, twenty-four hours after death, all the organs were found much congested but structurally healthy; a small quantity of spirit was obtained from the contents of the stomach; there was no odour about the brain, and no spirit could be obtained by distillation.

The soap-lees were swallowed by a child 18 months old. There was some difficulty of breathing, but the most marked symptom was intense heat of skin. Death followed in twelve hours. At the examination of the body, the larynx was found to be almost closed, at its top, by the greatly swollen epiglottis, and the mucous membrane from the mouth to the duodenum, particularly at the lower extremity of the œsophagus, was changed in character by the alkali, though nowhere destroyed.

In the cases where sulphuric acid was swallowed, death resulted from the destruction of the mucous membranes that came in contact with the poison. and also from the sero-albuminous exudation into the submucous tissue. One patient lived four days, another eleven, and the third, a child but 17 months old, died in seven hours. although tracheotomy was performed to relieve the suffocation caused by the inflammatory œdema of the submucous tissue about the top of the larynx.

Two cases are added to these to illustrate the local effects on the mouth and throat of sulphuric and nitric acids. In these, glycerine was applied to the parts, and a mixture of carbonate of magnesia. tincture of opium, and mucilage. was given internally. In one instance. that where sulphuric acid was taken, the mucous membrane of the mouth and fauces peeled off, and was afterwards restored. The ulterior effects of caustic poisons in causing constriction of the œsophagus, are seen in the case of gastrotomy previously described.

VII. *Description of some new Wax Models, illustrating several Cases of Elephantiasis, Diseases of the Nails, etc. etc.*

This communication, though a very interesting one, is, of course, more particularly to be appreciated and used by those who are able to study the models therein described.

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[1] According to the U. S. Dispensatory, each ounce of Burnett's solution contains 200 grains of chloride of zinc.

VIII. *Malposition of the Abdominal Viscera in relation to the Causes and Diagnosis of Disease.* By S. O. Habershon, M. D.

This communication contains the history of a case in which there was complete transposition of the thoracic and abdominal viscera. The patient was a woman, 48 years of age, who was dying when brought to the hospital, and the condition of things was detected only at the post-mortem examination.

It contains, in addition, a minute account of changes in position undergone at times by the different portions of the intestine in the abdomen, showing the uncertainty of resting solely on their normal site as our guide in diagnosis. These changes in position are caused by distension, by rotation, by the effect of old adhesions, and by congenital arrangement.

The communication is an interesting and instructive one, so far as it goes, but the title led us to look for something more than merely this account of the changes in position of portions of the intestinal tube, which forms by no means all the "abdominal viscera."

A plate is attached representing the position of the viscera in the case above mentioned.

IX. *Gunshot Wound in the Loins; Fracture of the Lamina of the Vertebra; Perforation of the descending Colon; Fecal Abscess; large white Kidneys; Albuminuria; Death nearly Four Years after the Injury.* By S. O. Habershon, M. D.

The patient whose very curious case is here described was a soldier, 18 years of age, who was wounded in the trenches before Sebastopol. A ball, weighing more than one and a quarter ounces, passed through the spinal canal, breaking the lamina of the third and fourth lumbar vertebræ. The point where it entered was below the termination of the cord; and it is probable that neither the membrane surrounding the terminal nerves before their exit, nor the large veins upon the vertebra, were injured. Pain for a short time down the thighs was the only symptoms which could be referred to any injury to the spinal nerves. Three days after the wound the ball passed *per anum.*

The renal disease, which was the cause of the man's death, is attributed, by Dr. Habershon, to the contiguity of the kidneys with the inflamed tissues injured by the ball. He has several times observed such disease to arise after chronic dysentery has continued some time.

This communication is accompanied by a plate, exhibiting the gunshot wound in the loins extending into the colon.

X. *Cases of Pyæmia.* By S. O. Habershon, M. D.

These cases are two in number. The first is that of a woman, 34 years of age, whose condition for some time had been one of extreme destitution. She was admitted as labouring under a severe ague, having every day rigors, followed by heat and sweating. Large blebs were developed on the skin, especially on the hands and feet. She became more and more prostrate, notwithstanding the treatment, which was throughout stimulating, until her death, which took place on the eleventh day, or about twenty-five days from the commencement of the disease. There was nothing to be particularly noticed in the state of any of the organs as examined after death.

"Pyæmia," Dr. Habershon says, "is the name of a condition with generally well-marked symptoms; but it is probable that in other degrees of severity it comprehends many cases of so-called rheumatism, and probably, also, such as that narrated." We think this case would be generally regarded as one of acute pemphigus rather than one of pyæmia, no matter of what degree of severity. Similar cases are thus described by Cazenave and Schedel, and several other writers on diseases of the skin.[1]

The other case is that of a young man, 19 years of age, who, while suffering from gonorrhœa—how long the running had existed is not stated—had slight rheumatism of the knees and ankles, and lobular pneumonia at the base of the right lung. A few days afterwards, when considered as convalescent, he got up to go to the night-chair, and, after the bowels had acted, complained of faintness; carried to his bed, in half an hour he had ceased to breathe. At the autopsy it was found that there had been phlebitis of the prostatic veins, which contained a well-marked ante-mortem clot that extended through the iliacs, the vena cava, the right side of the heart, and the pulmonary arteries throughout the lungs.

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[1] See the work of Cazenave and Schedel, 4th edit., page 202.

This case, Dr. Habershon says, tends to confirm the ideas of those physicians who affirm that the symptoms resembling rheumatism, produced by gonorrhœa, arise from the absorption of noxious materials leading to change in the molecular or chemical states of the blood; in fact, producing pyæmia.

XI. *Cases Illustrative of the Treatment of Rheumatic Fever.* By G. Whitley, M. D.

The object of this paper is to ascertain, as far as possible, by an examination of the cases of rheumatic fever treated in the wards of Guy's Hospital by the different physicians during the last three or four years, what mode of treatment appears most frequently and most rapidly successful. For this purpose the cases of acute fibrous rheumatism have been selected, and twenty-three such are briefly reported.

In fifteen of these cases salts of potash were given, either at first or after the failure of other means. In no instance did they fail to effect a cure, which, even in severe cases, was sometimes attained very rapidly. Some recent acute cases treated with lemon-juice made a very rapid cure, but in many instances this remedy proved ineffectual.

From what is known of the nature of rheumatic fever the alkaline treatment would certainly seem to promise most success. The chief indications in the treatment are, to prevent the formation of an undue amount of lithic acid, or to favour its conversion into urea, and to facilitate the elimination of the fibrin present in excess in the blood. Alkalies not only act as solvents for lithic acid, but they also dissolve fibrin, and, in addition, their neutral salts, especially those of potash, are diuretic.

XII. *Lesions of the Nervous System Producing Diabetes.* By F. W. Pavy, M. D.

In a bibliographical notice contained in the number of this journal for April last will be found a very full analysis of a most important paper on the sugar-forming function of the liver, published by Dr. Pavy in the last volume of the *Reports.* The experimental investigations therein detailed controvert the views entertained by physiologists with respect to the production of sugar by the liver during life. They show conclusively that in the healthy organ, during life, there is a substance which, in its chemical bearings, is exceedingly like dextrine, and prone to most rapid transformation into sugar when in contact with complex nitrogenized animal materials. In the liver after death this transformation takes place, and with such astonishing rapidity that this organ has been erroneously supposed to be strongly charged with a saccharine principle when the animal is alive. The fact is, however, as Dr. Pavy has proved beyond a doubt, that naturally, during life, there exists a force, or condition, which overcomes this strong chemical tendency to a saccharine metamorphosis; and the hepatine, as he terms this peculiar substance, does not undergo this conversion. In pursuing his researches during the past year, Dr. Pavy has been led to follow out new paths of inquiry; and, in this present communication, he proposes to mention the facts that have been brought to light in the course of his experimental investigations concerning the disturbances of the nervous system that produce saccharine urine.

The fact from which Dr. Pavy now starts, is this: When, after the pithing of an animal, artificial respiration is resorted to, so as to allow the heart's action to continue and the circulation of the blood to go on, then the sugar formed as a *post-mortem* effect in the liver is carried from it and distributed through the system to be eliminated with the urine. When, however, the circulation is not kept up no sugar, under these circumstances, is to be discovered in the system. An experiment in proof of this was mentioned in his last paper; and two are detailed in this, in one the lower part of the medulla oblongata was divided, in the other the central portion, which show that when artificial respiration is kept up the urine becomes strongly saccharine, and that this results from the ordinary post-mortem change in the liver furnishing sugar, which is carried by the circulation to the kidneys, thence to be discharged by their action. This fact, therefore, must be considered as established, namely, that after the destruction of the medulla oblongata the cause preventing the transformation of hepatine into sugar ceases to act.

When the spinal cord was divided, and in some of the experiments the division was made as high as between the second and third vertebræ, when, of course, artificial respiration was required to maintain the circulation, diabetes was never produced. With regard to the brain, when the experiments are attended with almost insuperable difficulties, it is scarcely allowable to speak positively, but it is almost a matter of equal certainty that its functions may be completely destroyed without the urine becoming saccharine. It is then only when the medulla oblongata ceases to act, from the death of the animal, or from its destruction, that the hepatine is transformed into sugar, or, in other words, that the liver loses a force or a condition that checks the chemical tendencies of hepatine.

The channel by which the medulla oblongata transmits this influence downwards was then endeavoured to be established. The spinal cord cannot constitute the passage for the transit of this force, because, as just said, after its division the liver remains in an ex-saccharine state. Neither could it be the pneumogastrics, for these nerves have been divided over and over again without the production of diabetes. Dr. Pavy divided, also, in the same animal, both the spinal cord in the cervical region and the two pneumogastrics, and no diabetes resulted. When everything belonging to the nervous system passing through the neck was divided, which was done by decapitating the animal, and artificial respiration was employed to keep up the circulation, the urine was strongly saccharine. The channel of communication, therefore, must be through the sympathetic nerves. Section of the carotid sympathetic has frequently been performed, and no one has ever spoken of it as leading to the production of diabetes. There is, however, another part of the sympathetic system running through the neck, namely, the filaments accompanying the vertebral artery. When these were divided Dr. Pavy obtained a most strongly-marked diabetes. At first Dr. Pavy supposed that this was owing to the influence of the medulla oblongata being thus cut off from the liver, but certain phenomena were observed in subsequent experiments that tend to show that there is something yet to be discovered beyond this. Our knowledge of the sympathetic nerve is so imperfect, and its connections are so numerous, that it is very difficult to understand the reason of all that is observed in experimenting upon it.

Commencing then at this point in the vertebral canal in the lower part of the neck, Dr. Pavy followed up the sympathetic nerve, proceeding upwards towards the head, and downwards through the chest towards the abdomen. A great number of experiments were performed in pursuing this investigation, the animal operated upon being generally a healthy dog, kept upon an animal diet and taken at a period of full digestion. Each of the experiments is minutely detailed, as are all those that were performed at each step of this investigation. Their results, which, notwithstanding the great interest attached to every point in these researches, is all that can be given in this analysis, will be briefly stated.

When the sympathetic filaments, running up on each side from the superior thoracic ganglion to the vertebral canal, were torn through, the urine became saccharine. Wishing to see the effect of dividing the filaments in the vertebral canal, and believing that this could not be done without severing also the arteries which he thought would produce fatal hemorrhage, Dr. Pavy tied these arteries before their entrance into the vertebral foramina, and also the two carotids on account of the free anastomosis existing at the base of the brain between these two pairs of vessels. The ligature of these vessels did not produce diabetes; and when, under these circumstances, the division of the two vertebral canals was effected diabetes resulted. Having found, in the course of these experiments, that no apprehension of death need be entertained from loss of blood if the section were made without any deligation of the arteries, the vertebral canals only were operated upon, and to Dr. Pavy's astonishment the urine did not become saccharine. The inclusion of the carotids in the experiments was, therefore, a necessary condition for the production of diabetes. He sought, then, to discover what could be the influence of the ligature of the carotids in determining this effect. As diabetes was not produced when they were carefully tied together with the vertebrals it could not be from the simple obstruction made to the passage of blood; it must have been owing to the destruction of the sympathetic filaments ramifying upon the exterior of these vessels. At the upper part of the neck there is quite a large oval-shaped ganglion that sends one branch to the pneumogastric and numerous filaments to the carotid artery. When this was removed an intensely diabetic effect was produced; of all the operations performed, this was the most certain and speedy in producing diabetes. It is, therefore, reasonable to suppose that the destruction of its carotid branches, conjoined with the destruction of the sympathetic in the vertebral canal, is the cause of the result obtained. The destruction of either singly is not sufficient to produce the effect which the destruction of the two would seem to be the cause of inducing. When the carotids were tied, and the anterior and posterior surfaces of the transverse processes of the atlas were scraped bare so as to destroy all that laid in connection with the vertebral foramen, the urine gave a decidedly strong reaction of the presence of sugar.

Upon the sympathetic in the chest a number of operations were performed. In some of these experiments the strongest diabetes was noticed; in others, from some cause, which it is not easy to discover, only traces of sugar could be found in the urine; and in others, there was none at all. To ascertain the effect of dividing the nerves immediately connected with the liver —those contained in the lesser omentum—two experiments were made. In both of them a considerable amount of hemorrhage resulted. Neither of them was attended with the slightest discoverable diabetic effect.

From this series of experiments the evidence is most conclusive that lesions of certain parts of the sympathetic system produce strongly-marked diabetes. What the chain of phenomena is, by which such an effect is determined, constitutes a most important problem, one, too, most difficult of solution; but we may hope for much when it is being investigated by so able and industrious a physiologist as Dr. Pavy has more than once proved himself to be.

This communication is accompanied by a plate showing the cervical and thoracic sympathetic of the dog.

XIII. *Contributions to the Practical Surgery of New Growths or Tumours.* Series III., *Cysts.* By J. BIRKETT.

In this communication those new growths dependent upon the formation of cysts are illustrated. Those developed on the integument of the whole external surface of the body, and also those in so much of the mucous membranes of the oral orifice and the female genital organs as are within sight, are included. Though it has a certain value, this contribution, from the very nature of the subject, possesses by no means the same interest as the others of this same series, published in the two preceding volumes of the *Reports.* The pathology and treatment of the cysts that form in relation with the glands which secrete sebaceous matter, and with those which secrete mucus, are well understood. Mr. Birkett relates twenty-one cases of the former, and fourteen of the latter.

Two plates are attached to this communication, one to illustrate a case of labial cyst; the other one of sublingual cyst, or ranula.

XIV. *Cases of Aneurism of the Cerebral Vessels.* By WILLIAM GULL, M. D.

According to Dr. Gull, aneurism of the cerebral vessels is not so extremely rare a disease as has been supposed. It is only within the last ten years that such cases have been looked for, and already quite a number of cases have been reported. It is, moreover, an affection which, even when looked for, is very likely to escape detection. When death occurs from rupture of the sac, recent coagula may so imbed and conceal it that unless very carefully looked for it will not be found, for the sac is often small and thin and transparent, except at the point of rupture. Again, when death has taken place from changes around the aneurism, as by pressure or softening, the sac itself may present such appearances that unless a minute dissection be made of it, its true nature may not be discovered.

Of sixty-two cases of inter-cranial aneurism, collected by Dr. Gull, the seat of the disease was as follows:—

Vertebrals and branches.	Vertebrals	4
	Basilar	20
	Small vessels in substance of pons	1
	Posterior cerebral	3
		28
Carotids and branches.	Internal carotids by sella turcica	8
	Middle cerebral	15
	Anterior cerebral	6
	Anterior communicating	1
	Posterior communicating	4
		34

Of 58 of these cases, where the sex is given, 35 were males, and 23 females. The age is also given in fifty-eight cases, and they are distributed as follows:—

Under 25 years	12
25 to 40 "	13
40 to 60 "	29
Over 60 "	4
	58

Tables are added giving the synopsis of the symptoms of aneurism of the basilar artery, of those of aneurism of the middle cerebral artery, of those of aneurism of the anterior cerebral artery in the substance of the hemisphere, and of those of aneurism of the arteries of the circle of Willis. The detailed histories of six cases of inter-cranial aneurism are also contained in this communication.

There do not appear to be any symptoms or order of symptoms, upon which a diagnosis of cerebral aneurism can be made. The liability of the cerebral vessels to this lesion must, however, always enter into our calculations in the general diagnosis of tumours, especially when there is evidence of local pressure on parts about the base of the brain.

This communication is illustrated by two wood-cuts and one plate.

XV. *On Retroversion of the Aortic Valves from Disease in the Sinuses of Valsalva.* By William Gull, M. D.

The wonderful simplicity and perfection of the action of the sinuses of Valsalva for adapting the aortic valves to prevent regurgitation during the diastole of the ventricle are well known to physiologists. The case here reported by Dr. Gull draws attention to an accident that may occur when these sinuses become rigid from ætheromatous changes. Some of the conditions by which retroversion of the aortic valves may be produced have already been referred to, but the direct influence of the want of elasticity in the sinuses has never been noticed. The case is thus related:—

John H——, æt. 39, a day labourer in the docks, always had good health until ten weeks before admission into Guy's Hospital. His symptoms—breathlessness, orthopnœa, palpitation, and cough—came on suddenly. He never had rheumatism. The distress of breathing continued, and was attended with so much pain across the chest, that an aneurism of the aorta was suspected. The pain was, however, probably attributable to sudden and continued distension of the left ventricle. The stethoscopic symptoms were only those of aortic regurgitation. He remained unrelieved, and died after being five weeks in the hospital.

At the autopsy the sinuses of Valsalva were found extremely ætheromatous, and the aortic valve corresponding to one of these was retroverted.

This communication is illustrated by a plate.

XVI. *On Destructive Changes in the Lung from Diseases in the Mediastinum Invading or Compressing the Pneumogastric Nerves and Pulmonary Plexus.* By WILLIAM GULL, M. D.

Physiologists have proved by experiments, that, when in animals both the pneumogastric nerves are divided, the lungs undergo destructive changes. The effect of dividing only one of these nerves is not so well determined, some physiologists affirming that the corresponding lung becomes inflamed, while others, and they are the great majority, declare that no obvious effects are produced. Experiments, however, can only be made upon these nerves in the neck, and as they communicate freely in the pulmonary plexus, it is probable that one nerve can maintain the normal integrity of this plexus, and morbid effects will not result from injury to the other. When, however, the nerves and their plexus are injured by disease lower down about the root of the lung the results are different, because the branches going to either lung may be individually implicated, and consequently the corresponding lung be directly deprived of its nervous supply. This is illustrated by the three cases detailed in this paper. In one of these an aneurism of the left side of the arch of the aorta pressed upon the left pneumogastric nerve and the upper part of the pulmonary plexus, and there was sloughing pneumonia of the left lung. In the second, cancer of the œsophagus invaded the trunk of the right pneumogastric nerve and the branches of the pulmonary plexus behind the right bronchus; the result was pneumonic consolidation and commencing gangrene of the right lung. In the third, a fibrous thickening of the tissue in the mediastinum implicated the right pneumogastric nerve and the branches of the pulmonary plexus; the pulmonary tissue in the right side was consolidated, infiltrated with pus, and sloughing, and the bronchial tubes were much dilated and full of muco-purulent secretion.

The mode in which injury to the pneumogastric nerve produces such disastrous effects upon the lung, is by paralysis of the bronchi and air vessels. The bronchial tubes become unable to empty themselves of their contents, a muco-purulent secretion accumulates, concomitant exudation into the air-cells takes place, and at length disintegration of the tissue.

XVII. *On Factitious Urticaria.* By WILLIAM GULL, M. D.

In this communication, attention is directed to a class of cases in which wheals are produced upon the skin when rubbed by the dress or otherwise, or when stretched by the use of the muscles in violent exertion. Though this susceptibility of the skin is common, in a greater or less degree, to all persons, in some it is so extreme that it can be truly termed morbid. In one of Dr. Gull's patients, when the face was wiped with a towel, or the socks pulled on, the skin quickly became swollen and stiff with wheals.

These wheals are most readily produced in places where the skin is well supplied with muscular fibre-cells. No matter how susceptible it might have been before, when chloroform was dropped upon the skin no wheal could be brought out; when ice was applied to the part immediately after friction, a wheal did not arise; and by stretching the skin, a wheal could be obliterated, apparently by obliterating the contraction of its muscular tissue. Fictitious urticaria must, therefore, be the result of contraction of the muscular fibre-cells contained in the skin.

This communication is illustrated by a plate, showing two letters raised upon the arm. They have risen into bold relief, pale, and surrounded with a capillary blush.

XVIII. *Contributions to Dental Pathology.* By S. JAMES A. SALTER, M. B., F. L. S., F. G. S.

The first of the contributions is on the impaction of permanent teeth in the substance of the maxillary bones. It not unfrequently happens that certain of the temporary teeth are found present and firm in the adult mouth, whilst the corresponding permanent teeth, those which should have succeeded and replaced them, have not made their appearance. In these cases, the presence of the temporary tooth is almost always associated, not with the total suppression and absence of the corresponding permanent one, but with its presence in an abnormal position. Seven cases are described in which this condition of things was found to exist, each of them illustrated by a wood-cut. The histories of several cases are also detailed, in which the capsule of the impacted permanent tooth dilated into a serous sac. One of these cases is also illustrated by a wood-cut. This is a fact not to be lost sight of by the surgeon, that an expanding tumour in the antrum maxillare, or indeed in any part of the maxillary bones, may depend on a serous cyst involving a misplaced tooth.

The second contribution is on the subject of "Warty Teeth," of which an account was given in the analysis of the last volume of *Reports*. This contribution is likewise illustrated by two wood-cuts.

XIX. *Cases of Injured Arteries.* By Alfred Poland and Constantine Holman, M. D.

In the first of the cases reported in this communication, there was a traumatic aneurism of the ulnar artery in the palm of the hand, for the relief of which the artery was tied both above and below the sac, and still it pulsated as freely as before. After tying the radial artery so as to cut off the supply of blood from the deep palmer arch, all pulsation ceased immediately. In the second, the wrist was wounded by a cut from a knife, and although both ends of the radial artery, the only one that was thought to be injured, were tied, the hemorrhage still continued, and was only arrested by the ligature of the ulnar.

The third case is one of aneurism of the anterior tibial artery following an operation for the removal of the necrosed head of the fibula, probably from some injury then received by the coats of the vessel. An attempt to ligature the vessel at the seat of the aneurism was ineffectual, even after freely laying open the sac, on account of the great depth of the vessel and its retraction into the interosseous space; and it was necessary to tie the femoral, which was done at the upper third.

In addition to these three cases of injured arteries this communication contains the details of a case of dislocation of the hip-joint from strumous disease, where the head of the right femur was spontaneously cast off and found in an abscess below Poupart's ligament, from which it was removed.

XX. *On some points in the Diagnosis and Treatment of Heart Disease.* By G. H. Barlow, M. D.

This essay, though only five and a half pages in length, is one of very great interest, and is evidently the result of many carefully made observations and much reflection. It is written to point out that the greater number of valvular diseases of the heart, and a considerable proportion of diseases of the organs of circulation in general, have a tendency to range themselves into one or other of two large classes, according to which classification our treatment should be, in a great measure, regulated. The great difference between these diseases consists in the obstruction—for, after all, regurgitation is practically the same as obstruction—originating on one side or the other of that great barrier the mitral valve. The tendency of disease of the heart is to propagate itself backwards; that is to say, in the opposite direction to the current of the circulation. Now this tendency is, in the case of aortic disease, opposed, and often for a long time successfully opposed, by the perfect closure of the mitral valve. When, however, the mitral valve is affected, and its closure is imperfect, the lungs, right heart, and liver, become gorged in rapid succession.

In disease of the aortic valves, what we most dread, are death from syncope, and a gradual failure of the power of the left ventricle which becomes dilated. The plan of treatment indicated is tonic and often stimulating, the object being to maintain the tone of the system, and, as much as possible, to prevent this dilatation. In disease of the mitral valves, on the other hand, although the pulse is much more feeble, the same advantage is not derived from stimulants; we must rely here chiefly upon relieving the circulation through the portal system by free catharsis, establishing a free action of the kidneys, and relieving the pulmonary circulation by free expectoration.

XXI. *Cases Illustrative of the Etiology of Enlargement of the Heart.* By G. H. Barlow, M. D.

This communication contains the histories of the fatal cases of heart disease that have occurred in Guy's Hospital for the past two years, in which there was no affection of the valves or adherent pericardium to account for its production. The causes of enlargement of the heart are very properly divided by Dr. Barlow into three classes, namely:—

1. Obstruction from changes in the orifices of the heart, or in the course of the circulation.
2. Obstruction arising from changes in the quantity or physical properties of the blood.
3. Deficiency of strength in the parietes of the heart itself.

The cases reported in this communication are seventeen in number, and they are mainly illustrative of the second and third of these classes. In a large proportion of them Bright's disease co-existed.

XXII. *On the Failures of Marsh's Process for the Detection of Arsenic.* By WILLIAM ODLING, M. B., F. R. S.

This communication is one of importance to those who may be called upon to make chemical investigations in cases of poisoning or others where the presence of arsenic may be suspected.

Attached to this volume is a page of errata, which is added for the purpose of correcting errors in the calculations of percentage in Mr. Poland's paper on Tetanus, in the third volume of the *Reports*. These were pointed out in the notice of that volume made in this journal. W. F. A.

ART. XXVIII.—*Pathological and Practical Observations on Diseases of the Alimentary Canal, Œsophagus, Stomach, Cæcum and Intestines.* By S. O. HABERSHON, M. D., London. Fellow of the Royal College of Physicians, Assistant Physician to Guy's Hospital, and Lecturer on Materia Medica and Therapeutics, etc. etc. 8vo. pp. 312. Philadelphia, 1859, Blanchard & Lea.

ALTHOUGH this volume is a small one, when compared with the magnitude and importance of the subjects of which it professes to treat, it will be found, nevertheless, to present a series of facts, derived from the clinical observations of the author, of a particularly instructive character—whether as confirmatory of deductions that had been already made in reference to the pathology and proper treatment of the diseases to which those facts refer, or as pointing to new ones that had escaped the notice of preceding labourers in the same field of observation.

The work of Dr. Habershon is not presented as a systematic treatise on the diseases of the alimentary canal, but rather as a concise, but at the same time clear exposition of such clinical observations as seem adapted to shed additional light upon those difficulties in respect to the nature, diagnosis, course, termination, and treatment of these diseases, which constantly present themselves to the physician in the daily practice of his profession; the deductions arrived at being enforced by the brief history of one hundred and sixty-three cases that had fallen under the notice of the author.

A considerable portion of the facts recorded in the chapters on diseases of the œsophagus, and on organic diseases of the stomach, had already appeared in the pages of the Guy's Reports for 1855 and 1856, and we are informed by Dr. H., in his preface to the present volume, that those, also, in connection with diseases of the intestines, were intended originally to be printed at the same time, had the limited space allowed to each contributor permitted this to be done.

The first, or introductory, chapter presents a hasty, but interesting sketch of the general pathology of the different portions of the digestive tube; of the mucous coat and its secretions; of the muscular coat, giving rise to an irregular, tumultuous, retarded, or spasmodic condition of the peristaltic action; and, lastly, of the serous investment; with a notice of the various derangements of the circulation and innervation of these several parts. This pathological sketch is followed by a rapid review of the general principles that should guide us in the selection and administration of remedies for the control of the leading morbid conditions of the alimentary canal—whether adapted to check fermentative or other chemical action in the secretions from its mucous membrane and associated glands, to correct or improve these secretions, to remove offending or injurious materials or excretions, to restore the normal condition and movements, to alter the state of the circulation, and the condition of the bloodvessels and absorbents, and to modify the innervation.

A few instructive remarks are made upon the connection which often exists between different diseased conditions of the same or of different organs—either as mere coincidences, as the simultaneous impression of the same morbific influence upon several organs, or as different manifestations of the same disease in its progressive action. Reference is also made to the important modifying, predisposing, or antagonistic influence of one disease upon another; or the conservative influence exerted by one morbid condition against the occurrence of another.

From an attentive perusal of the entire chapter, many useful general hints will be derived, leading to practical lessons of the utmost importance.

The *diseases of the œsophagus* treated of in the *second* chapter, are spasmodic stricture, inflammation, organic obstruction, cancer, compression by aneurism or tumour, rupture of the coats and their solution by the gastric juice.

Many of the cases related in the present chapter as illustrative of these several lesions are particularly interesting, inasmuch as the several morbid conditions of the œsophagus are but very little understood. They are, not unfrequently, as will be seen by the observations recorded by Dr. H., very obscure in their pathology and most insidious in their origin. Some of the instances of ulceration of the œsophagus perforating the trachea or bronchi adduced by him, have generally, and, he believes, incorrectly, been described as examples of cancerous affection.

Under the head of *simple ulceration* of the œsophagus, it is remarked that—

"There are many instances of persons complaining of pain at the upper part of the sternum on swallowing, in whom no trace of pressure or aneurism can be found; and I have seen this symptom disappear under the use of tonics, sometimes with iodide of potassium. The idea of cancerous growth has been precluded; and it has been, therefore, a question whether some abrasion of the mucous membrane, or slight ulceration, such as we sometimes find in the pharynx, had not led to this complaint."

In regard to the treatment of simple ulceration of the œsophagus, the diagnosis of which, during life, is attended with the utmost difficulty, Dr. H. remarks that—

"It is exceedingly unsatisfactory; the spasmodic contraction of the ulcerated part prevents the passage of œsophageal tubes; no food can be swallowed, and the administration of nutrient enemata prolongs life only for a few days or weeks. It is painful to find, after death, that simple ulceration of the œsophagus, or a fistulous communication with the trachea, is the only existing disease, and that, if food could have been introduced beyond this point, life might have been prolonged. The operation of œsophagotomy is a very difficult one, and, in many of these cases, if performed, would be quite ineffective, because the disease is often situated at the root of the lung, or behind the first bone of the sternum; in either case, the operation could not be performed below the seat of stricture. It having been found that the peritoneum may be divided without fatal result, and without the terrible effect seen to follow from ruptured viscera, the propriety of forming a gastric fistula in some of these cases is worthy of very serious consideration. It appears certainly warrantable, as it would afford a chance of life to those who now have only a prospect of certain death. In the human subject, several cases of gastric fistulæ accidentally produced have been recorded, and the experimenters on animals purposely make such openings, under the influence of chloroform, without the production of severe peritonitis."

The diseases of the œsophagus are illustrated by the histories of twenty cases.

The *third* chapter is devoted to the *organic diseases of the stomach*—atrophy of the gastric mucous membrane; post-mortem solution of the coats of the organ; inflammation [catarrhal, acute, and diphtheritic]; ulceration [superficial, follicular, aphthous, chronic, penetrating]; suppuration in the coats of the stomach; sloughing of the mucous membrane; fibroid degeneration of the pylorus; cancer of the stomach.

Dr. H. believes that, to some extent at least, the same forms of diseased action occur in the stomach as in the mouth—inflammatory congestion and acute inflammation, perverted epithelial growth and secretions, sluggish circulation, and fibroid and cancerous disease. Ulceration of the stomach he considers as probably a more common condition than is generally supposed, and that, in many instances, it will readily yield to a judicious treatment. Among the forms of gastric ulceration, he thinks that there are those which are superficial and evanescent, leaving after them scarcely any more trace in the mucous coat of the stomach, than aphthous inflammation of the mouth does in the mucous membrane of that cavity.

The cases related by Dr. H. show that there are several diagnostic phenomena by which the simple, follicular, and aphthous ulceration of the stomach may be distinguished from cancerous disease of the organ.

Fibroid degeneration of the pylorus, which has generally been considered as of a cancerous character, is, unquestionably, a form of disease having almost invariably a fatal termination, which the physician has it not in his power to prevent. Dr. H. has shown, however, that though we can neither remove the disease nor conduct it to a favourable result, we can do much to mitigate its symptoms, and to prolong the lives and comfort of those in whom it has become developed.

Referring to the investigations of Dr. Murchison on the subject of gastro-colic fistula, which were published while the work before us was in press, Dr. H. remarks that, in the two or three cases which have fallen under his observation, it appeared that cancerous growth in the stomach had led to adhesion between this organ and the omentum or colon, or both, new products being effused and the mucous membrane of the colon infiltrated—the perforation occurring as a consequence, rather of the disintegration of this secondary product, than from direct perforation from the part primarily affected. This explanation, he thinks, furnishes a reason why, in the cases recorded by him, no fecal vomiting took place.

In respect to cancerous disease of the stomach, the cases detailed by Dr. H. show that—1st, the symptoms may be exceedingly slight, and the presence and character of the disease overlooked. 2dly, that the indications are more marked where the gastric orifices are affected. 3dly, that, in most cases, death takes place from exhaustion or asthenia. 4thly, that fatal hemorrhage and perforation are more rare than in simple ulceration of the stomach. 5thly, that the absorption of degenerating cancer structure sometimes leads to symptoms resembling pyæmia. 6thly, that some of the distressing symptoms of cancerous disease of the stomach may be relieved, but excess of treatment has a tendency rather to hasten the fatal termination.

Thirty-six cases are given in illustration of the organic diseases of the stomach.

The *functional diseases of the stomach* are next considered (Chapter IV.). They are dyspepsia, pyrosis, hæmatemesis.

In respect to dyspepsia as simply a functional disease of the stomach, chemical research has already removed from it much that was formerly obscure, and cannot fail to throw still more light hereafter upon the nature of the pathological conditions which present themselves during its continuance. A more intimate acquaintance with the physiological connection of the sympathetic nerve, and the branches of the semi-lunar ganglia, will enable us, also, more correctly to estimate the very varied symptoms that occur in dyspepsia, many of which are produced by the morbid action of these portions of the nervous system.

Dyspepsia, according to Dr. H., is dependent upon either an abnormal condition of the digestive mucous membrane and its secretions; impeded muscular movements of the stomach; the state of the vascular supply; the condition of the nervous system; or the character of the food, and the changes which take place in it. Several of these causes may be combined in the same case. Some of them give rise to merely slight and transient symptoms, while others of them are lesions of an irremediable character.

The entire account given by Dr. H. of the pathology and treatment of the different forms of dyspeptic ailments is well deserving of an attentive study. The views presented in respect to the causation and character of some of the most common and troublesome stomachic affections which fall under the notice of the physician, especially in our larger cities, are particularly sound, while the curative indications laid down by the author, and the means he points out for their fulfilment, although rapidly sketched, are worthy of especial consideration.

The observations on dyspepsia are illustrated by the histories of three cases.

Hæmatemesis, or vomiting of blood, is described under its several forms, accordingly as it results from ulceration of the stomach, from a congested or obstructed portal circulation, from vicarious menstruation, from cancerous disease, from a vitiated condition of the blood, as in purpura, and from aneurism.

Cases are adduced illustrative of hæmatemesis from cancer of the liver, from disturbance of the menstrual flux, etc., and one where the vomiting of blood succeeded to excessive indulgence in intoxicating drinks.

The *fifth* chapter is devoted to the *diseases of the duodenum.*

The facts which Dr. H. has deduced from clinical observations have convinced him that there are symptoms by which certain of the diseased conditions of this portion of the alimentary canal may be satisfactorily diagnosed; and yet, so intimately combined are the symptoms resulting from many of the morbid states of the duodenum with those indicative of simple disease of the contiguous viscera, that definiteness and certainty cannot always be attained. The chapter presents us with instances of disease of the duodenum which closely simulated disease of the pyloric extremity of the stomach.

Speaking of ulceration of the duodenum, Dr. H. remarks:—

"After burns the mucous membrane of the duodenum has been found greatly congested, and, in several cases recorded by Mr. Curling, in the *Medico-Chirurgical Transactions*, ulcerated. This has not been confirmed in the observations of Dr. Wilks, in the Guy's Report for 1856, many of which cases I witnessed; and although in some the first part of the duodenum was hyperæmic, in none did I observe ulceration. Such a case, however, is placed in the museum at Guy's, in which Dr. Gull has drawn attention to a small ulcer existing at this part. The child survived twenty-five days, but died comatose—a small cicatrizing ulcer was found in the first part of the duodenum.

"Mr. Curling describes diarrhœa, and the discharge of blood, as having arisen from this condition of the duodenum, and sometimes severe hæmatemesis and prostration. In some, death took place from peritonitis consequent on perforation. After such severe injury to the skin, it is not surprising to find great disturbance of the circulation of the internal organs and especially of the mucous membranes, which are known to sympathize so closely with the skin; in some of these cases, stimulants appear to have been administered freely, and these have probably conduced to the inflammation of the duodenum."

The histories of five cases are given in illustration of the diseases of the duodenum.

The observations recorded in the *sixth* chapter present examples of *gastro* or *muco-enteritis* and *acute enteritis.* In the first, the inflammation being confined to the mucous membrane of the intestine, with a tendency to spread along the course of the membrane, while in the second of these forms of disease, the inflammation, commencing in the intestinal mucous membrane, extends in depth rather than superficially, and, consequently, implicating the muscular and peritoneal coats with the connecting tissues.

The histories of three cases serve as illustrations.

In the very excellent account which Dr. H. has given of the inflammatory affections of the upper portion of the intestinal canal, the great importance of a correct diagnosis at the very onset of the disease is strongly urged upon the notice of physicians. Life may be readily sacrificed by loss of time as well as by improper treatment.

The erythematic or mucous form of enteritis will be conducted generally to a favourable termination by judicious diet, warmth to the abdomen, demulcents, and other simple means. In the ordinary cases of enteritis, Dr. H. proscribes mercurials, while he urges in strong terms the value of salines—the bicarbonate and chlorate of potash and the carbonate of soda.

The subject of the *seventh* chapter is *strumous disease of the alimentary canal*, in its various forms. 1. As it occurs especially in infants—diarrhœa, with or without strumous disease of the mesenteric glands, often induced by, and in many cases leading to, uncontrollable purging. 2. Primary disease of the mesenteric glands. 3. Tubercle in the peritoneum, and strumous peritonitis, in its several forms—of *a*. Miliary tubercles covering the general surface of the peritoneum—visceral, parietal, and mesenteric. *b*. Strumous deposit on the peritoneum, and in the glands, associated with inflammation inducing a matting together of the intestines, sometimes to perforation from without, or to the formation of small fæcal abscesses. *c*. Peritoneal ascites with miliary tubercles. *d*. With tympanites. 4. Tubercle in the mucous membrane with enteritis, leading to softening, ulceration, and perforation, as is frequently observed in phthisis. 5. Tubercle in the appendix cæci.

The author calls attention to the fact, that no one of these strumous affections of the intestine or peritoneum are to be regarded as of a strictly local character, the whole of them being the result of a general perverted nutrition. He has shown that strumous disease in other organs is, in many instances, obscured by the more marked affection of the abdominal viscera. In the treatment of the strumous affections of the alimentary canal, Dr. H. strongly urges the avoidance of mercurials and drastic purgatives. It is very certain that the lives of many delicate children have been sacrificed by the administration in these diseases of vermifuge and other quack remedies.

The brief histories of six cases are given in illustration of the diseases embraced in Chapter VII.

A most interesting series of observations follow (Chapter VIII.), illustrative of diseases of the cæcum and its appendix. From these we learn that distension, local, circumscribed inflammation, and some other affections of the cæcum occur, in many cases, altogether independent of the more serious form of cæcal disease consequent upon perforation of the appendix.

From observations recorded in the chapter before us, it would appear that the symptoms of cancerous disease of the cæcum differ from those of simple cæcal inflammation and perforation, and that in many cases this difference in the symptoms will enable us to detect the true character of the complaint, which is a matter of some importance, inasmuch as, in cases of a non-malignant nature, much may be done, by a proper course of treatment, for the alleviation of cæcal disease, and to insure its favourable termination. The pain attendant upon the generality of these affections, points to the necessity of perfect rest, which should be continued without intermission for several days after the acute pain has subsided. To relieve the constipation which often attends the disease, purgatives are not adapted—they aggravate the malady without unloading the bowels. The application of leeches, with the use of opium internally, will, according to the experience of Dr. H., better succeed in securing the desired result. Mild mercurials, combined with opium, have a beneficial effect, we are assured, in hastening a subsidence of most of the morbid conditions of the cæcum.

The leading particulars connected with the pathology, diagnosis, course, and treatment of the several affections of this intestine and its appendicula are well illustrated by a series of appropriate cases.

The subject of the *ninth* chapter is *diarrhœa*. Although it is admitted that abnormal frequency in the evacuations from the bowels is merely symptomatic of certain diseased conditions of the intestinal canal, extremely various in character, Dr. H. has, nevertheless, considered it proper to present a description of the several forms under which morbidly frequent discharges from the bowels take place—with a general consideration of the characters which distinguish each of them—their prognosis, causes, and treatment.

Colitis and *dysentery* are discussed in the next chapter (Chap. X.). The more severe and malignant forms of dysentery, such as are met with in tropical climates, in particularly unhealthy localities, in military campaigns, and in certain epidemics of the disease that have prevailed from time to time, are of comparatively rare occurrence in Great Britain, and the same remark will hold true also of most of the cities in our middle and northern States.

Dysentery Dr. H. defines to be an inflammatory affection of the intestinal mucous membrane, generally limited to the colon, and when severe, rapidly passing into ulceration or sloughing, unless, from its extent and violence, or the previous condition of the patient, it proves fatal at an early stage.

In regard to the division of dysentery made by Dr. Lyon, in his *Crimean Report*, into the exudative and the follicular, Dr. H. supposes that the first does not indicate a distinct form of disease, but rather, perhaps, an earlier period of one and the same form, or that preceding ulceration and sloughing. The cases of dysentery that have fallen under his own observation, may be divided practically, he remarks, into three classes. 1. Those in which the inflammation of the colon was the primary disease—where it was very extensive, and sometimes rapidly fatal. 2. Those associated with inflammation of other membranes or organs, arising at the same time, and produced apparently by a general cause, as with bronchitis, laryngitis, or pneumonia, in some instances, closely allied to pyemia. 3. Those cases in which inflammation of the colon has hastened the fatal termination of other more chronic diseases.

"In some of the cases, typhoid fever was simulated; in others, perforation of the colon had taken place; in one, there was pyemia and commencing suppuration in the liver; in several chronic cases, the secondary effects were shown in producing contraction of the intestine, perforation, and artificial anus, etc. As regards abscess in the liver, in one, the abscess had dried and contracted; in another, fresh diseased action was set up around it, and abscess in the brain was the result."

In its most severe forms, dysentery will be found to prove almost invariably fatal; the utmost that can be hoped from the best devised treatment is to soothe in some degree the more painful symptoms, and thus relieve the patient of a part of his sufferings. In the great majority of the cases which usually present themselves, however, by demulcents given by the mouth and in the form of enemata; astringents similarly administered, with opium, ipecacuanha, etc., appropriate clothing and diet, avoidance of cold and dampness, we shall be able, with considerable certainty, to stay the progress of the disease, and to shorten its duration.

Dr. H. has never met with a case of dysentery in which venesection could have been practised with probable success. He considers that local bleeding, however, is highly serviceable, either from the anterior surface of the abdomen or from the anus. Leeches to the latter part, it is certain, will often relieve the violence of the pain and of the tenesmus.

Fifteen cases are detailed in illustration of the teachings of the chapter.

Dr. H. has omitted all notice of Asiatic cholera. This he has been induced to do, because it has not been clearly shown that the disease is really one affecting alone or principally the abdomen, while at the same time he considers that the report of Drs. Baly and Gull presents, with sufficient accuracy and clearness, all the facts known in reference to the disease.

In the chapter on *typhoid fever* (Chap. XI.), only the abdominal lesions characteristic of the disease are described; neither the pathology of the fever itself nor its treatment is discussed. Dr. H. merely warns against the exhibition of opiates for the purpose of arresting diarrhœa, from their liability to produce cerebral congestion and excessive engorgement of the lungs.

The chapter (XII.) on *colic* is devoted to a brief notice of the simple and more manageable forms of the complaint—those, namely, which result from flatus—occurring in nervous subjects, and attended with spasm of the bowels—or such as are caused by some injurious property in the food, by morbid secretions, or retained excretions, and by poisoning with lead. The more severe and unmanageable forms of painful intestinal disease, such as ileus, internal strangulation, intussusception, and cancerous affection of the colon are treated of separately in the *fourteenth* chapter.

In reference to these latter affections, Dr. H. remarks, that, while they all bear a strong general resemblance in the production often of fatal constipation, they may, in many instances, be distinguished from each other. Simple colic may be accompanied by a discharge of bloody mucus, or by actual diarrhœa. The latter symptom is often connected also with cancerous disease of the sigmoid flexure of the colon. In all of the diseases embraced in the fourteenth chapter, Dr. H. enters his protest against the use of every kind of purgative, and as earnestly recommends opiates in large doses. The cases detailed by him show, almost uniformly, that when purgatives, even the mildest, were given, the vomiting, pain, and distress were all increased, whilst these as well as the other symptoms present were, on the contrary, relieved by the free use of opium.

The *thirteenth* chapter treats of constipation. Dr. H. enumerates as causes of this condition of the bowels, peculiarity of habit or idiosyncrasy; paralysis, diminished contractility, or excessive fatness, etc., of the abdominal walls; alteration of the secretions poured into the large intestine; abnormal condition of the coats of the intestine itself; impacted condition of the large intestine, from a combination of feces with indigested portions of certain kinds of food habitually taken; and, finally, mechanical obstruction from tumours affecting the coats of the intestines, or more generally from the pressure of the gravid uterus, ovarian growths, etc.

Among the results of protracted constipation pointed out by Dr. H., are enormous distension of the intestine from continued accumulation of feces, and the abnormal development of the lateral pouches of the colon. In this condition the contents of the intestine are to some extent removed from out the central current, and may remain impacted in them while the stools are passed with some degree of regularity. The enlarged pouches filled with impacted feces may frequently be felt like tumours through the abdominal walls.

"These pouches of the colon sometimes become of considerable size. Generally the circular fibres of the canal surround them, but not very unfrequently the circular fibres yield, and the mucous layer projects, covered only by the peritoneum, forming a more elongated sac, filled with mucus, or more frequently with feces. The orifices of these small sacs are bounded by the hypertrophied circular and longitudinal fibres, and their contents remain almost shut off from the intestinal canal."

Dr. H. has most frequently observed the distended pouches in connection with the sigmoid flexure; but, as he remarks, they probably occur at any part where the longitudinal fibres form a triple band rather than a uniform layer. In one case, they were situated about every half inch, forming a double row on each side of the colon. No muscular fibres could be detected in several of them, beyond the immediate vicinity of the mouth of the sac, but merely mucous membrane, submucous cellular tissue, fat, and peritoneum. These pouches do not appear to produce any symptom, or lead to dangerous results.

A brief chapter (Chap. XV.) is devoted to the subject of *worms*. It is the least interesting and instructive one in the whole volume.

The subject of the *concluding chapter* is *suppuration of the abdominal walls* and *perforation of the intestine from without*. The series of observations adduced in illustration of these by no means unfrequent occurrences are especially worthy of a close study. Many of the cases present great obscurity in their diagnosis, and vary much in the course they pursue. To make out the exact nature of the morbid conditions present in each, the utmost care is to be observed, and the import of every symptom present weighed with the utmost care.

Their treatment must be based upon indications derived from the character of the prominent symptoms of each case, as they become developed. The entire subject of pathology and management is well illustrated by the histories of the eleven cases which are given by the author.

To those who desire to consult a series of admirable observations well adapted to throw important additional light upon the general symptoms, pathology, and treatment of the leading diseases of the different portions of the alimentary canal, the work of Dr. Habershon is very confidently recommended. It is replete with instruction invaluable to the young practitioner, and from which even the most experienced of the elders of the profession may gain some facts that have escaped them in the prosecution of their own clinical investigations.

D. F. C.

ART. XXIX.—*The Mortality after Operations of Amputation of the Extremities. and the Causes of that Mortality.* By ARTHUR ERNEST SANSOM, Associate of King's College. The Prize Essay of the Medical Society of King's College, London, for the year 1858. London: John Churchill, 1859. 8vo. pp. 23.

THE very great importance of the subject, and the desire of facilitating the labours of more competent observers than himself by an accumulation of data, are assigned by the author as the reasons for the publication of this interesting little pamphlet. He conceives, moreover, that in the labours of the learned on this subject, "pet theories may creep in, mingling even with statistics, though a would-be watcher be over them," and that "there may be too something beneficial in truth being sought by one so young in the profession, untrammelled by prejudice."

The great mortality attendant upon amputations was first made known to the profession in this country by the article published in this journal in August, 1838 (vol. xxii. old series), entitled "*Statistical Account of the Cases of Amputation performed at the Pennsylvania Hospital*, from January 1st, 1831, to January 1st, 1858, by George W. Norris, M. D., one of the surgeons." We might almost say was first made known to the profession at large, for with the exception of an essay published by Mr. B. Phillips, of London, in the *London Medical Gazette* for June 9th, 1838, we believe that no information of any great importance had ever before been presented on this important subject to the medical public. Since then two additional articles have been published by Dr. Norris in this Journal, one in vol. xxvi. (1840), the other in vol. xxviii. N. S. (1854). The statistics of the amputations performed in the Massachusetts General Hospital have also been published in this Journal, in articles contributed by Dr. Hayward, in vol. xxvi. (1840), and vol. xxi. N. S. (1851). Those of the New York City Hospital, drawn up by Dr. Buel, are to be found in vol. xvi. N. S. (1848). Others of the same hospital were furnished by Dr. Lente in the *Transactions of the American Medical Association*, vol. iv. (Philadelphia, 1851), and an abstract of them was given in the number of this Journal for April, 1852. The statistics, therefore, of the amputations performed in the chief hospitals of our great northern cities, and the great mortality attending such operations, are well known to the medical profession in this country.

Among the most, if not indeed the most, important papers ever written on this subject of the mortality of amputations, are those of Dr. Samuel Fenwick, of New Castle upon Tyne, contained in the *Monthly Journal of Medical Science*, in the numbers for 1847 and 1848. We esteem them so highly not only because the statistical tables given therein are very extensive, but also on account of the useful practical facts deduced from them by the author. His tables show the general mortality of amputations of the limbs, the influence of age, of sex, of the cause requiring the operation, and of the season of the year, the time after an operation when the danger to life is greatest, the number of deaths caused by different diseases after amputation, the time at which life is generally destroyed by these diseases, how the success of an amputation varies according to the part of the limb at which it is performed, the influence upon the mortality of the nature of the accident or the disease for which it was performed, the influence of the duration of the disease, the success following primary and secondary operations, the influence of the circular and the flap methods, and what are the causes of death after each. These, though perhaps the most, are by no means all, the interesting and instructive points elucidated by the tables contained in these papers of Dr. Fenwick, which might well be taken as models by those who desire, by statistical researches, to resolve or aid in the solution of surgical problems.

In some remarks we took occasion to make, when reviewing recently the small volume of Mr. James on the operation for strangulated hernia, we called attention to the great mortality, as was shown by statistics, attending this operation, which was generally believed, but a few years since, to be one of comparative harmlessness. In like manner surgeons were far from considering the operation of amputation to be so fatal as the statistics of Norris and others above mentioned have shown it unquestionably to be. Bell in his celebrated system of surgery declares that not one death will happen in twenty cases, even including the general run of hospital practice; and that in private practice, when due attention can be more certainly bestowed upon the various circumstances of the operation, the proportion of deaths will be much less. The tables of Dr. Fenwick show that out of 4,937 cases, 1,565 died, or that the operation was fatal in 1 case in every 3.15. In fact, the horrible mortality that attends all capital operations was never dreamed of before statistics were applied to surgical investigations, and we can scarcely estimate too highly their value. We would wish here to make a remark that seems to us to be called for. Like all good things, statistics have been abused, and the knowledge derived from them in regard to the high mortality attending capital operations, has been improperly applied. We cannot, perhaps, express our meaning better than by quoting from the papers of Dr. Fenwick, above referred to. He says: "An attempt has been made to sanction other operations, by comparing their results with those of amputations; and, were the reputation of the surgeon the only matter for consideration, no better means could be employed for that purpose; but as it is the value to the patient which is to be estimated, the matter must be viewed in a very different light. Thus, although one out of every four cases of removal either of an ovary or limb may die, the value of the operation will be very different to the persons suffering from the complaints requiring the performance of these operations. We are here to weigh against the dangers of extirpation, a considerable chance of two or three years' existence, and a comparative freedom from pain during that time; whilst, in the other, a speedy death or great suffering is all that can be expected, unless by amputation the affected part be removed."

The statistical tables prepared by Mr. Sansom are compiled partly from Mr. Guthrie's commentaries, partly from the records of the London Medical Society of Observation, and partly from the records of individual operations published periodically in the *Medical Times and Gazette.* The table of the operations performed in London from 1837 to 1857 shows that in London practice the mortality after amputation, in the last twenty years, has been 29.86 per centum. The table as given by Mr. Sansom is as follows:—

PERIOD.	No. of operations.	Deaths.	Per cent.
1837–1842	184	69	32.95
1840	87	32	36.07
1854	180	56	31.11
1855	136	35	25.75
1856	155	43	27.74
First six months of 1857 .	84	19	22.61
January, 1854 to June, 1857 .	555	153	27.05

There are some mistakes in the last column of this table which should be corrected; 32.95 should be 37.50, 36.07 should be 36.78, and 27.05 should be 27.56. In the tables of Dr. Fenwick are collected 3,486 cases, occurring in civil practice in Great Britain, the United States, France, and Germany; of these 1,117 died, or 1 in 3.12, giving a mortality of 32 per centum. This we think is nearer the true percentage than that of 23 per cent., given by Dr. Gross, in his late work, and the results, therefore, of London practice, must be considered as quite favourable.

A very interesting question is the comparative risk attending amputations and excisions. What Mr. Sansom says on the subject is, that in 1855, 1856, and the first half of 1857, there have been performed 69 excisions of the principal joints; the deaths have been 13; thus making a mortality of 18.84 per centum. Consequently, according to the statistics given by Mr. Sansom, the risks attending the operation of amputation are as much as one-half higher than those attending that of excision; these are to each other as 27 : 18 or as 3 : 2. These statistics are very insufficient, and give, we believe, an erroneous impression. Out of 160 cases of excision of the knee, collected from all British sources, both metropolitan and provincial, by Mr. Price, 32 died, or 1 in 5.[1] Mr. Bryant, in a paper, an abstract of which was given in the July number of this journal, states that at Guy's Hospital, of 167 cases of pathological amputation of the thigh, 18 per cent. were fatal, or 1 in 5½. Taking into consideration the greater fatality attending operations in cities than in the country, and above all in a city hospital, we think ourselves right in concluding that, so far as the knee-joint is concerned, excision of the joint is, at least, equally fatal with amputation of the limb. We must not, moreover, lose sight of the fact that in 17 of the cases that recovered from excision, amputation became afterwards necessary.

Several pages of Mr. Sansom's pamphlet are occupied with discussing the influence of anæsthetic agents upon the mortality after amputations. This question, upon which at the present time accurate information is so much desired, it is evidently the wish of Mr. Sansom to decide in favour of the employment of these agents. He adds but very little indeed that is new to the statistics given by other British surgeons on this subject, and these he regards in the light most gratifying to himself. In this way he is led to the conclusion "that in cases of disease where amputation is necessitated, confidence in chloroform should remain unshaken; but that in cases of severe injuries it behooves at least to ponder well before its use." The following table is given as showing the mortality per cent. after amputations for diseases of bones and joints, as deduced from the tables of the London Medical Society of Observation.

	All members.	Thigh.	Leg.	Upper ext.
PRE-CHLOROFORM PERIOD—				
1837–1842	33	29	44	23
1840	34	43	25	40
POST-CHLOROFORM PERIOD—				
January 1856 to July, 1857	19	20	17	14
1854 and 1855	20	20	23	8

The post-chloroform period in Mr. Sansom's table does not comprise a sufficient length of time to justify any positive deduction to be made from his observations. To show the necessity of extending the observations through a number of years, Dr. Norris, in the statistics above mentioned, calls attention to the fact that from January 1st, 1830, to January 1st, 1832, the mortality was 1 in 11; from January 1st, 1832, to January 1st, 1834, it was 7 in 14; in the next two years 8 in 15; in the next two 5 in 15; and in the next two, or from January 1st, 1838, to January 1st, 1840, it was 1 in 24. Now these were similar cases, and they were subjected to similar influences and treatment. From a table given in the review of the *Transactions of the American Medical Association* in this journal for April, 1852, it appears that, according to the statistics then available, the mortality with anæsthetics in the American hospitals was 1 in $2\frac{1}{3}$, or 43 per cent., in cases where amputation was performed for injuries, and 1 in $4\frac{8}{9}$, or about 20 per cent., when performed for diseases. Without anæsthetics the mortality was 1 in $3\frac{37}{88}$, or 29 per cent., for injuries, and 1 in $6\frac{3}{4}$, or 15 per cent., for diseases. More facts on this important point are very much to be desired.

In regard to the average periods of recovery and death in amputations of the upper and lower extremities, Mr. Sansom's table shows that in the case of amputation of the upper recovery is more tardy, and the advent of death more rapid. This, to use his own expression, is *strange*. The number of the cases from which this calculation has been made is not stated. As a general rule, according to the tables of Dr. Fenwick, amputations of the upper extremity heal more quickly than those of the lower, and, in either, the time required for cure depends considerably upon the thickness of the parts at which the operation is performed.

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[1] We cite from the British and Foreign Medico-Chirurgical Review, for October, 1859, page 440.

That portion of Mr. Sansom's pamphlet treating of the causes of death after amputation is based upon the results given in a table calculated from the cases recorded in the London hospitals from January, 1856, to June, 1857. His conclusion is that the two most common causes of death after amputation are shock and exhaustion, and pyæmia, "that the former is now-a-days the most frequent, being twice as frequent as the latter." Here again it must be said that the data furnished are altogether insufficient for arriving at any correct general conclusion, such as is implied by the expression *now-a-days*. Statistical tables of much greater extent go to show that phlebitis and purulent absorption occur in the majority of the cases of amputation terminating fatally. The two causes of death in amputations mentioned by Celsus are *profusio sanguinis* and *defectio animæ;* modern surgery, by the use of the ligature, contends successfully with the former danger, but nervous shock is as much to be dreaded as ever, and we despair before pyæmia, a danger in ancient times entirely unknown.

Speaking of Celsus leads us to endeavour to rectify what we believe to be an erroneous statement in regard to him, made by Mr. Sansom in a historical resumé of the most special circumstances affecting the increase or decrease of the rate of mortality after amputation. He says that "it was not until Celsus that there was any improvement; he extended slightly the list of circumstances under which the operation should be undertaken, and he distinctly specifies in his work a method of arresting hemorrhage by ligatures on the bleeding artery." Now the fact is that Celsus does not speak of amputation anywhere but in the 39th section of the VIIth book, and the only cases in which he advises it are in certain cases of gangrene of the extremities. As to ligaturing the arteries in amputations, he certainly never thought of such a proceeding. Bleeding should be arrested, according to him, by sponges with vinegar and water, and applications of a similar character. He adds, moreover, *cetera postea sic facienda, ut in vulneribus, in quibus pus moveri debit, præceptum est.* Now in the place thus referred to nothing is said of ligaturing bleeding vessels. The only place where Celsus speaks of tying a bloodvessel is where he speaks of *curable wounds*, and then he states that in obstinate bleeding from an incised wound two ligatures may be tied on the *vein*, which should afterwards be divided between them. (Lib. V. Sect. xxvi. § 21.[1]) This point is, indeed, not one of much importance, but it possesses considerable interest in a historical point of view.

In what we have taken occasion to say of this little publication, we hope that we may not be misunderstood when objecting to some of the tables therein contained as being insufficient. Though we must hold them to be not sufficiently extensive to warrant general conclusions to be made therefrom, yet we must heartily thank the author for their preparation, and for having presented them to the medical public. Such publications as his are most welcome to those engaged in investigating one of the most important points in surgery, the dangers of amputations, and the best means of contending with them. W. F. A.

Art. XXX.—*Urinary Deposits; their Diagnosis, Pathology, and Therapeutical Indications.* By Golding Bird, M. D., F. R. S. Edited by Edmund Lloyd Birkett, M. D., etc. etc. A new American from the fifth London edition. With eighty illustrations on wood. 8vo. pp. 382. Philadelphia: Blanchard & Lea.

Very few works are better known to the medical profession than that of which the fifth edition is now before us; very few have established for their authors a more solid claim to a place among the *emeriti*. Dr. Bird's memory will ever be honoured as that of an earnest, intelligent, and successful labourer in a most important field.

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[1] The edition we have referred to is that of Leonard Targa, Leyden, 1785, admitted to be the best ever published.

The duty of preparing this posthumous edition of a work so valuable to the student and practitioner of medicine has been well performed by Dr. Birkett. We have, of course, here to call attention only to the modifications he has made, and of these we can only allude to the most important. They are partly incorporated in the text, and partly arranged in the form of foot-notes.

In the first three chapters, on the chemistry and physiology of the urine, we find some new matter of moment. The description of two acids discovered in the urine by Dr. Marcet, published by him in 1853, is quoted in full, with its accompanying wood-cut. The processes recommended by Liebig, Lehmann, and Davy, for obtaining and estimating the amount of urea, are detailed; as well as that of Lehmann for determining the quantity of chlorine, and that of Bensch for determining the amount of uric acid.

The tables in § 26, for the chemical and microscopical examination of urinary deposits, have been rendered much simpler and more convenient, and to a slight extent enlarged.

On page 61, a paragraph is inserted on the subject of the new views entertained by chemists with regard to the organic radicals. A more extended exposition of this important change in theory would have been by no means out of place here, while it would have proved very valuable to the less proficient reader.

Dr. Bird, in the previous editions of this work, expressed the opinion that the principal salt of uric acid, obtained from healthy urine, was that formed with ammonia. His present editor, while acknowledging the ingenuity of the theory sustaining this idea, denies its correctness; preferring the view held by Lehmann, that the salts of uric acid with soda, lime, and potash, are the important ones, while the urate of ammonia is present only in very small quantity. Five cases, observed by Drs. Hassall and Letheby, are adduced in support of this preference, which is in accordance with the views expressed by Simon in his "Chemistry of Man," and with those set forth in the recently published work of Thudichum on "The Pathology of the Urine."

In a note appended to Chapter IX., on oxaluria, the views of Lehmann, Scherer and others as to the non-existence of an oxalic acid diathesis are stated, and the arguments in favour of its occurrence are concisely summed up. Such a diathesis exists, in the opinion of Dr. Bird and his editor, and we believe the profession in this country are disposed to agree with them upon this point.

In the chapter on the phosphates, the statements of Robin and Verdeil in regard to the neutral and acid phosphates of soda are quoted, with cuts copied from their representations of the crystalline forms of those salts. Another note to this chapter awards Dr. Hassall the credit of having first described the crystals of phosphate of magnesia.

To the next chapter, on deposits of abnormal blue or black colouring matters, we find added Dr. Hassall's views in reference to the relation between indigo and hæmatin, and a notice of Dr. Hughes' cases of black urine, published in *Guy's Hospital Reports*.

We now come to the portion of the work devoted to non-crystalline organic products. And here we find, in the first place, a note on the various forms of casts, with several wood-cuts. So far as it goes, this note is very good; but it seems to us that more space might have been allotted to so very important a subject, and especially to the collocation of the clinical symptoms with the forms of casts usually associated with them.

Several notes are introduced in the section on saccharine urine. Horsley's chromate of potash test, Luton's test, and the fermentation test, are detailed. Dr. Beale's remarks on the causes of failure in the use of Trommer's test are quoted, and will be found useful to many. But the most important portion of this additional matter is that relating to the physiological and pathological origin of sugar.

And here we must express our regret that the editor has failed to award Bernard, perhaps the greatest physiologist of our day, that credit to which he is entitled for his labours in the investigation of this subject. Dr. Pavy is made, as it were, to take the matter out of Bernard's hands.

Nor do we find ourselves much enlightened by the remarks which the editor offers us setting forth the existing aspect of the subject. We have space here to criticize, but not to attempt the much more difficult task of doing better; and we must allow that we should shrink from such an undertaking until further light is obtained.

It must be a matter of surprise that no allusion has been made in any edition of Dr. Bird's work to a paper on kiestein, published by Dr. E. K. Kane, in this journal, in July, 1842. Being based on clinical observation, and written in a philosophical spirit, that paper was surely worthy of reference in our author's bibliographical table, as a companion to the article on the same subject which he put forth in 1840, in the *Guy's Hospital Reports*.

The form in which this volume now appears is a very attractive one. The page has been considerably enlarged, and the type is clearer and more agreeable than that employed in previous editions. A very few typographical errors call for correction, such as "Donne" for "Donné," "Dichholz" for "Eichholz," "materies *morti*."

In conclusion, we confidently predict that the present issue of Dr. Bird's work will be received by the medical public in America with even greater favour than its predecessors. J. H. P.

ART. XXXI.—*Gustaf von Düben's Treatise on Microscopical Diagnosis*, with 71 engravings. Translated, with additions, by Prof. LOUIS BAUER, M. D., M. R. C. S. Eng., etc. 8vo. pp. 82. New York: John Wiley, 56 Walker Street. 1859.

WHILE we entertain a very high estimate of the value of the microscope as a means of research, we look upon its use in diagnosis as mainly incidental and corroborative. Without this instrument, anatomy, physiology and pathology could never have made such advances as they have within the last twenty-five years, nor, deprived of its aid, could they progress as we confidently expect them to do in the future.

A microscopic examination may disclose the nature of a urinary deposit, or confirm a doubtful diagnosis in regard to a tumour; but it can hardly be requisite for distinguishing skin-diseases, leucocythemia, or other disorders of the blood, or affections of the viscera generally. Hence, of the seventy-six pages of reading matter comprised in the little volume before us, the first fifty-five are devoted to matters belonging rather to general pathology than to diagnosis. The book presents a compilation of facts, doubtless useful in their place, although they merit fuller discussion than its limits allow them, but not answering at all to the title selected. Nor, we must observe, is sufficient stress laid upon the diseases to be diagnosed, in that portion of the volume which deals with discharges from the uro-genital organs. It is, after all, only through the chain of phenomena leading up to the primary morbid condition, that any symptom is of value in diagnosis; to detect oxalate of lime in the urine is useless, without a knowledge of the antecedents of the deposit.

A rigid critic might take exception to numerous idiomatic expressions retained in the translation; nor are the illustrations as well-executed as we think they should have been. J. H. P.

Art. XXXII.—*Elements of Medical Jurisprudence.* By Theodore Romeyn Beck, M. D., LL.D., &c. &c.; and John B. Beck, M. D., &c. &c. Eleventh edition. With Notes by an Association of the Friends of Drs. Beck. The whole revised by C. R. Gilman, M. D., Professor of Medical Jurisprudence in the College of Physicians and Surgeons of New York. In two volumes. Philadelphia: J. B. Lippincott & Co., 1860. 8vo. pp. 884 and 1003.

This new edition of the great work of Drs. T. R. and J. B. Beck is the result, as the title-page informs us, of the good offices of a number of their surviving friends. "After the death of T. Romeyn Beck," says the preface of Dr. Gilman, "it was ascertained that he had, with characteristic industry, collected a large amount of matter for a new edition of his treatise on Medical Jurisprudence. These materials were by his family placed in my hands, with a request that I would prepare a new edition for the press. Conscious of my own inability to do justice to such a trust, I sought aid from the friends of Dr. Beck. The required assistance was cheerfully rendered; and I was soon enabled to place most of the more important chapters in competent as well as friendly hands. In this way, I hope that the public are assured of a good edition of the book; while the friends of the author have a very welcome opportunity to pay a sincere and well-deserved compliment to the memory of a wise and good man."

The editor further expresses the just hope that the list of names subjoined of the gentlemen who united with him in this labour of love "will serve as a guaranty that something has been done in this edition, if not to elevate the character, at least to add to the usefulness of a work which, at home and abroad, has been recognized as an honour to the medical literature of our country." His own task, "besides general supervision, has been to incorporate into the body of the work the materials prepared by Dr. Beck, and to make the changes of which he had indicated the propriety. Some things I have added, some things modified; but I trust that all has been done with due respect to the memory of the dead."

The collaborators are Dr. D. Tilden Brown, Resident Physician of the Bloomingdale Lunatic Asylum, who contributes important alterations and additions to the chapter (XIII.) on mental alienation; Dr. R. H. Coolidge, Assistant Surgeon of the United States Army, who has revised and added to the chapter (I.) on feigned diseases, and to that (II.) on disqualifying diseases; Dr. Austin Flint, to whom were intrusted the three chapters (III., IV., and V.) on impotence and sterility, doubtful sex, and rape, respectively; Dr. B. W. McCready, Physician of Bellevue Hospital, who took charge of the chapters (XVI. and XVII.) on poisons and on irritant poisons; Dr. Samuel St. John, Prof. of Chemistry in the College of Physicians and Surgeons, New York, to whom were referred the remaining chapters (XVIII., XIX., XX., XXI.) on irritant poisons, on narcotic poisons, and on narcotic acrid poisons; Dr. John Watson, who attended to the chapter (XV.) on wounds of the living body; Professor J. P. White, of Buffalo, who edited the chapter (VI.) on pregnancy; Professor John C. Dalton, Jr., who contributed a valuable paper on the Corpus Luteum; and, lastly, Messrs. George Shea and Murray Hoffman, of the New York bar, to whom acknowledgments are rendered "for valuable suggestions on the purely legal portion of the subject."

We need hardly say that these gentlemen appear to have acquitted themselves well in their respective tasks; and it would be difficult, if not invidious, to dwell upon the amount and character of the additions which each one has presented in his particular province. The general effect is such as to bring once more into active usefulness one of our best and most interesting works, long the most comprehensive and complete upon its subject in the English language; and one which, as a work of reference, we hope to see kept up in its character, as well as within the reach of medical jurists, for many years to come.

In glancing over the pages, we recognize many interesting notes and other valuable improvements; but, although an amount of condensation has been effected in the new matter, which might, in many places, prove no less advantageous to the old, we would nevertheless have been glad to find more notice taken of several important cases which would have arrested the attention of the venerated author, and would doubtless have been noted with the fulness and acumen which have given his work its well-known stamp of reliable authority and encyclopedic character. Such cases, for instance, as that of Bocarmé, and those of Palmer, of Dove, and others, would hardly have been passed by Dr. Beck with the bare mention which seems to be the only notice afforded to them in the present edition; although, since its preparation for the press began, the journals have rarely been without some allusion to these or kindred cases in their pages.

On many of the topics, however, it is proper to say, that there is a decided advance on former editions; especially in the chapters on mental alienation, on wounds, on medical evidence, on feigned and disqualifying diseases, and on the questions in which the sexual functions and relations are concerned. The difficulty of introducing much new matter into the already crowded chapters on poisons, without great labour in condensation and inconvenient increase of length, has probably discouraged the discussion of some of the new cases under this head; but it has not interfered with the introduction of the generally received tests and of all such additional data as may be considered essential to the due progress of the work in accordance with the present state of toxicology.

The notes of Dr. Gilman are interspersed in considerable number, but with marked brevity, throughout the two volumes; and although not always in a very sober style, are clear and to the purpose; while they indicate great fidelity to his trust, as well as judgment, and familiarity with the whole subject.

We regret to find many typographical errors in a work where accuracy is a characteristic of paramount necessity. In all other respects, however, the getting up of the volumes is much superior to that of their predecessors, the printing being good, and the paper so much thinner, that notwithstanding some seventy-four additional pages, the actual bulk has been materially diminished. We know of no single work on a subject relating to medical science, that is so full of varied and absorbing interest to every class of readers; while as a work of reference to the professional inquirer it may still claim its long established position as among the best in the English language. E. H.

QUARTERLY SUMMARY

OF THE

IMPROVEMENTS AND DISCOVERIES

IN THE

MEDICAL SCIENCES.

ANATOMY AND PHYSIOLOGY.

1. *Experiments on some of the Various Circumstances Influencing Cutaneous Absorption.* By AUGUSTUS WALLER, M.D., Prof. Phys. in Queen's Coll., Birmingham.—In some former experiments[1] I endeavoured to elucidate the phenomena of cutaneous absorption on the lower animals (batracia), by immersing the hinder extremities in various solutions, and afterwards watching the period at which the absorbed substances reached the tongue, where their presence was detected by means of some reagent applied to its surface; as, for instance, a salt of iron, when the legs were immersed in a solution of yellow ferrocyanide of potassium; Prussian blue was then formed as soon as the ferrocyanide was brought to the tongue.

Furthermore, I was able to detect, by the aid of the microscope, the "lieux d'élection," or preference spots, where the cyanide escaped from the vessels.

On the present occasion I shall endeavour to elucidate cutaneous absorption on the higher animals, and, if possible, to give a more definite view of this function, by determining, by accurate measurement, the degree of rapidity, the peculiarities, &c., which it may offer in various conditions.

A very simple mode of demonstrating the existence of cutaneous absorption is by immersing the leg of a young guinea pig, not more than half-grown, into a mixture of equal parts of chloroform and tincture of aconite. After fifteen minutes' immersion, the part will be found insensible at the surface and extremities, and, after a short time, symptoms of poisoning by aconite will supervene, viz., nausea, efforts at vomiting, sometimes vomiting of bile, coldness of the surface and extremities, circulation very weak, laborious respiration, slight convulsive symptoms, and death.

The influence of age, or of thickening of the cuticle, is easily seen in the same way; for, if instead of a young animal we take an adult one, we obtain no poisoning, but merely local insensibility and slight disturbance of respiration, &c.

Another not less instructive experiment consists in replacing the mixture of chloroform and tincture of aconite by simple tincture of aconite. In this case, the limb may be indefinitely immersed without our obtaining either local insensibility or death, or indeed any symptom whatever of the presence of aconite in the system.

A fourth experiment, which consists in dividing the sciatic nerve, shows the influence of innervation on the function of absorption; for, if performed on an adult animal, and consequently one incapable of absorbing aconite in quantity sufficient to cause death, the powers of absorption will be generally found so much augmented that the animal will be poisoned by immersion of the limb in simple tincture of aconite.

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[1] Waller, "Absorption of various Substances through the Skin of the Frog."—*Frorieps Tagesberichte*, 1851.

In this experiment I attribute the acceleration in the cutaneous absorption to the paralysis of the bloodvessels, as in my experiments on the sympathetic nerve, where I showed that in bloodvessels the passage of the blood is completely regulated by nerves springing from the spinal cord. When the vascular nerves are paralyzed, the artery becomes greatly distended, and the blood flows faster within it. The foot after the section of the sciatic is, on this account, more hot and red: and for the same reasons it is easy to account for the more rapid absorption of medicinal agents.

A fifth experiment consists in placing a ligature on the limb, in order to impede the powers of absorption of the animal. Although the ligature does produce this result, I was rather surprised to find how much less efficient it was than is generally represented; for, whenever the least symptoms of a toxic influence made their appearance, a ligature placed over the limb rarely succeeded in saving the animal.

In order to obtain results more susceptible of measurement, I proceeded to substitute atropia for aconite, and to make use of the albino rat in lieu of the guinea pig. By this means, I possessed an agent whose intervention was immediately detected by its action on the iris. My choice of the albino rat was for the like reason, *i. e.* the facility which it offered for exact and easy measurement, in which respect this animal is far preferable to any other with which I am acquainted, unless we except the white mouse, which, however, is so liable to die from slight causes, that it is little adapted for most physiological experiments.

The *modus operandi* which I generally adopt is to immerse the limb into a small two-drachm bottle containing sufficient of the mixture to cover the foot and part of the leg. The strength of the solution of atropia being generally that from half a grain to one drachm of some menstruum, such as chloroform, alcohol, &c., I generally prefer simply to hold the animal during the experiment to any other mode of restraint. By these means I am able to guard against several causes of error, such as the direct contact of the solution with the eye or mouth, and, at the same time, avoid any unnecessary discomfort to the animal.

Chloroform and Atropia.—A solution of atropia in chloroform will generally be found to cause dilatation of the pupil after the foot has been immersed from two to five minutes. The dilatation, having once commenced, is usually very rapid, and the pupil very soon attains double or treble its normal diameter, which is about one-fourth to one-half a millimetre during daytime. It is easy to recognize that this dilatation is not in very simple ratio to the time occupied in its expansion, the expansion of the pupil being more nearly in proportion to the square of the time occupied than in a simple arithmetical ratio. Immersion of one limb causes both pupils to dilate equally, except in some few instances, where one pupil expands much more than the other, from some constitutional peculiarity, which remains the same whichever foot be immersed.

Although I have never failed to obtain dilatation of the pupils by the immersion of the foot in this solution of atropia, yet, in some cases, it takes more slowly than in others. The age of the animal has, in this respect, a most marked retarding influence. On animals only about a third grown, it will often occur at about two and a half minutes after immersion, while in the adult it generally requires five minutes and upwards.

The local effects of immersion are redness, heat, and swelling of the foot, accompanied sometimes with extravasation from some smaller vessels, when the immersion has been prolonged for ten minutes and upwards. The sensibility of the part is likewise diminished, but in no case so as to produce insensibility. The amount of irritation is of course variable, according to the duration of the immersion. It is, however, important to remark that full dilatation of the pupils may be obtained without any symptoms beyond those of a temporary active vascularization of the part, which quickly disappears when the irritating cause is removed, and which presents no more active symptoms than those produced by neuro-paralysis of the vessels after section of the sciatic nerve.

If instead of immersing the limb as above, we merely plunge it for a moment in the solution, we likewise may have dilatation of the pupil, but more slowly.

The same effects are obtained even although the limb be washed on its withdrawal from the solution, which would lead to the inference that the effect in that case is owing to absorption of the atropia, at all events beneath the cuticle.

In the case of a solution of atropia in turpentine, a still more curious effect is observed, viz., that during immersion in the liquid the pupil scarcely, if at all, dilates; whereas, immediately after the removal of the limb, the dilatation commences. Dilatation of the pupils will generally persist from twenty-four to thirty-six hours, and the return to the normal size is very gradual. In some cases the pupil may be affected after an immersion of nine minutes, the dilatation reaching three millimetres; while in others, only a very slight influence is obtained on the pupil after an immersion of from twelve to fifteen minutes. If the limb is then removed from the solution, the pupil dilates to its maximum in a few minutes. After two or three minutes' immersion, the animal shows signs of considerable pain. Much inflammation of the part follows the action of this solution, which is followed by œdema.

When we immerse the tail of the animal instead of its foot, absorption takes place much more slowly, dilatation of the pupil being produced only after the lapse of about twenty minutes.

Atropia and Alcohol.—If we substitute alcohol instead of chloroform as a solvent, we find that absorption is extremely slow. Instead of obtaining dilatation of the pupils in two or three minutes, we find that an immersion of twenty to thirty minutes in the alcoholic solution will only produce very slight effects. At the same time the local irritation is much less than that caused by chloroform. Alcohol of various strength, from proof spirits upwards, had the same result as a solvent.

Atropia in Water, with the addition of sufficient Acetic Acid for its solution.—The absorption of atropia in this state is very slow, thirty minutes' immersion frequently producing no dilatation of the pupils. Dilatation is then promoted by removal of the limb from the solution.

Watery Extract of Belladonna.—When rubbed over the leg and tail, this substance was not found, after the lapse of an hour, to produce any dilatation of the pupil.

Tincture of belladonna, with half its quantity of chloroform, produced dilatation at the end of fifteen minutes. The part was found on removal to be completely insensible, and considerably swollen from œdema, which lasted for several days.

Atropia with strong alcohol and ammonia produced dilatation of the pupil after twenty-five minutes' immersion. In this case, the ammonia was added for the purpose of ascertaining how far irritation of the part was conducive to absorption. Slight vesication was the consequence of the presence of ammonia. The acceleration of the absorption was very slight, as the solution produced no dilatation until after twenty-four minutes' immersion.

Absorption of Morphia.—The foot of a young rat at one-third its growth was immersed in a solution consisting of half a grain of acetate of morphia in twenty drops of alcohol and one drachm of chloroform. In five minutes the pupils gradually dilated to the maximum; the limb was then withdrawn; foot hot, red, and rather swollen. Irritation of the skin caused no cry, the animal merely withdrawing the part. Somnolency existed, from which any noise aroused it, but only for a moment. When placed on its back, the animal remained in that position. Respiration accelerated. Vision when roused very imperfect, as was shown by its falling off the table. The pupils continued fully dilated, the iris being reduced to an almost imperceptible circle, the dilatation exceeding that which I have been able to attain even with atropia. I will not dwell more fully at present on this last interesting fact, which is opposed to what we generally meet with in the administration of morphia. Twelve hours after, pupils normal, animal quite well.

Strychnia and Chloroform.—After three minutes' immersion of foot, dilatation of pupils ensued. After five minutes, the immersed limb was very sensitive, apparently more so than normal. Limb removed from solution: spasms about the throat now appeared, which were rapidly succeeded by stiffness of the trunk, increasing into tetanic spasms. Death two minutes after removal.

Strychnia and Alcohol.—Foot immersed in a solution of alcohol and strychnia for upwards of thirty-five minutes; no symptoms of strychnine poisoning. Removed from solution and washed. Twelve hours later, no dilatation nor contraction of pupils.

The above observations evidently show that medicinal substances may be very rapidly absorbed into the circulation under certain circumstances, among which, the most important is the choice of the menstruum in which they are dissolved.

It remains for us to examine into the effect of temperature, inflammation, neuro-vascular paralysis, &c., on absorption. But, what is of still more importance, we have to see how far these facts are applicable to man in health and disease.

Meanwhile, I take this opportunity to state that a remarkable uniformity exists between cutaneous absorption in man and in the lower animals, and I believe that the application of these facts to practical medicine promises to be very important and extensive.—*Journal of the Royal Society.*

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2. *Subarachnoidean Fluid.*—M. JOBERT DE LAMBALLE publishes the following singular case, to prove that Magendie erroneously considered the loss of the subarachnoidean fluid a cause of functional disturbance to the cerebro-spinal system.

A person of strong constitution, who was admitted into the Hôtel Dieu on the 11th of December, 1858, and died eleven days later, on the 22d, had been stabbed with a dagger by a man who was in the habit of paying her frequent visits. The blow was struck with great violence, and the blade had broken off, close to the handle of the poniard, the base corresponding to the skin, while its point penetrated into the vertebral cavity. The large bloodvessels had escaped injury, and the hemorrhage was therefore unimportant; but a continuous discharge of a serous fluid, analogous to the serum of blood, was observed oozing from the oblique wound of the integument. The sheets and bedding were wet through, so great was the amount which exuded daily, and the fluid, on examination, was found to consist of serum containing a few blood-corpuscles. It was impossible to remove the foreign body before the third day of the patient's sojourn in the hospital, and when it was withdrawn, a considerable rush of the same liquid took place. No muscular collapse, or diminution of muscular contractility was observed at any time, notwithstanding the escape of the cerebro-spinal fluid, nor any change in the mental powers. The patient having died from spinal meningitis, a post-mortem examination showed that the body of the sixth and seventh cervical vertebræ had been grazed by the instrument, the inter-vertebral substance injured, and the parietal dura mater and arachnoid perforated by the point of the blade.

The case is favourable to M. Longet's view, who, repeating Magendie's experiments, demonstrated that the withdrawal of the cerebro-spinal fluid does not materially affect the gait of animals.—*Journal of Pract. Med. and Surg.*

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3. *Presence of Urea in Chyle and Lymph.*—Two years ago, M. AD. WURTZ finding at Alfort a carnivorous bull in which a fistula of the thoracic duct had been established, it occurred to him to search for urea in the chyle of this animal. To this inquiry he was induced by the consideration, that urea ought to originate, not in the capillary bloodvessels, as has been sometimes pretended, but in the intimate structure of all the tissues, at every part where materials which have become unfit for life require to be removed by the respiratory combustion. If this be the case, we ought to detect urea not only in the blood, where its presence has been ascertained for a long time past, but also in lymph, and, consequently, in the chyle of the thoracic duct. It appears, indeed, natural, that the lymphatics should contribute their share towards the absorption of the materials proceeding from the metamorphoses of the tissues, in which the radicles of these vessels are distributed. The chyle of the bull referred to was accordingly found very rich in urea. M. Wurtz coagulated, at a warm temperature, about 600 grammes of the chyle, evaporated the filtered liquid, treated it with absolute

alcohol, evaporated and then exhausted the alcoholic extract by means of ether; the latter deposited perfectly colourless crystals of urea, which was partially converted into nitrate. This result induced M. Wurtz to extend his researches to lymph. Having procured, through the kindness of M. Colin, the lymph of the dog, the cow, the bull, and the horse, he ascertained in them the presence of urea. It further appeared of interest to compare the quantities of urea contained in the blood, chyle, and lymph of the same animal. For this purpose it was necessary to undertake certain quantitative researches, which were accomplished by means of a process which it would be too long to explain, but which is essentially founded on a combination of the methods which MM. Liebig and Bunsen have proposed for the determination of urea. The following table presents the numerical results obtained in these researches:—

Name of Animal.	Diet.	Quantity of Urea contained in 1000 grammes of		
		Blood.	Chyle.	Lymph.
Doe	Flesh	0.089	...	0.158
"	"	...	0.183	...
Cow	Dried lucern	0.192	0.192	0.193
Bull	Lucern and rape-cake	...	0.189	0.213
"	Oil-cake before rumination	...	...	0.215
Ram	Ordinary diet—rumination suspended	(arterial) 0.248	0.280	...
Sheep	" " "	...	0.071	...
Horse	" " "	...	...	0.126 0.112

M. Wurtz adds, that having had occasion to analyze a certain quantity of chyle properly so called, collected along the course of the mesenteric chyliferous vessels, after the ganglions, he ascertained there also the presence of a small quantity of urea. This is no doubt derived from the changes of tissue which are effected in the walls of the intestine itself.—*Edin. Med. Journ.*, Dec., 1859, from *Comptes Rendus de l'Acad. des Sciences*, July, 1859.

MATERIA MEDICA AND PHARMACY.

4. *Saccharated Lime.*—Lime dissolves in water in much larger proportion in presence of sugar, and this solution is strongly recommended as a tonic and antacid by Dr. John Cleland (*Edinburgh Med. Journ.*, August, 1859).

Dr. C. gives the following formula for its preparation:—

"Slake 8 ounces of quicklime; rub up with it 5 ounces of white sugar; add 1 pint of water; stir for some time, till the hard stiff masses which the sugar and lime are liable to run into are as much as possible dissolved; then filter. The product should be perfectly clear, and of only a slightly yellowish tint. A solution made in this way will contain 18 grains of lime in every ounce by weight, and altogether about 106 grains of solid matter to the ounce. Taken undiluted, a few drops are sufficient to roughen the tongue. When diluted, the taste is at first an acrid one of lime; but this is immediately replaced by a sweet taste in the back of the mouth, admitted to be pleasant. Made as just recommended, the solution is not liable to decomposition unless it is exposed to the air. By employing a smaller proportion of water to lime, a still stronger solution may be obtained, but not with any practical advantage, as there is increased difficulty of filtration and greater tendency to decomposition."

This preparation, Dr. C. states, "is, of course, a powerful antacid, and probably the best we have, since it is stronger and pleasanter than magnesia, and does not weaken digestion like the alkalies. Far from doing so, its most important use is as a tonic of the alimentary system in cases of obstinate dyspepsia. As such, its action is much more powerful than that of the vegetable stomachic tonics. It is suitable for cases with too little as well as for those with too great secretion of gastric juice, no doubt because the former state of matters is obviously a result of atony, which the lime removes. It seems particularly serviceable in gouty constitutions. In the dyspepsia of hysterical and anæmic cases it does not seem to be of great use. Care should be taken to tell the patient not to take it before breakfast, as it sometimes causes a degree of nausea in the morning, when the stomach is empty. It suits very well to take it immediately after meals; its alkalinity does not at all interfere with digestion. Practitioners seem generally to take up the prejudice beforehand, that saccharated lime must be liable to produce constipation, probably judging so from the action of chalk; but I wish particularly to insist that it has not, in the slightest degree, any tendency to occasion such an effect. On the contrary, it is a very valuable means of overcoming gradually that chronic constipation which is so frequent an accompaniment of dyspepsia; and persons who have for years been in the constant habit of using aperient medicines have been able to abandon them in great measure after taking this remedy for some time. In a single instance it acted as a purgative, so that its use could not be continued. It will be found serviceable in checking the diarrhœa of disordered digestion, acting as lime-water does, only that the latter is so dilute that it is often impossible to administer it to adults in the quantity desirable. Patients who take saccharated lime habitually get to like the taste, and seem to think it exhilarating. It may be found useful also in allaying the cravings of the intemperate. I have no doubt that, if it be fairly tried, practitioners will find it an exceedingly useful remedy. It may be given in doses of from 20 or 30 to 60 minims or more, in a glass of water, two or three times a day."

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5. *Use and Properties of Perchloride of Iron.*—The solution of this persalt is now almost universally employed to arrest arterial or venous hemorrhage, resulting either from accident, or as a consequence of surgical operations. It has also been found useful in intestinal hemorrhage; in one case in particular, M. Demarquay, of Paris, administered, morning and evening, enemata of seven ounces of fluid, with twenty drops of the concentrated solution of perchloride of iron, and a tablespoonful of the perchloride syrup (five or six drops to the tablespoonful), where the hemorrhage from the bowels was considerable, and had resisted the ordinary remedies. The result was extremely satisfactory. The same surgeon relates a second case of extensive abscess of the shoulder, where an injection of iodine caused severe hemorrhage. This was arrested by throwing into the sac a lotion composed of seven ounces of water and ten drops of the perchloride.

In gonorrhœa and leucorrhœa, injections of the perchloride have been tried with success in weak and lymphatic subjects, the proportion of the perchloride being twenty drops to three ounces and a half of water.

As a *Hæmostatic.*—1. As a local or external hæmostatic, 3 to 5 parts chloride of iron to 100 parts of distilled water. Lint soaked in this mixture is to be applied with more or less pressure on the seat of hemorrhage. 2. As an external hæmostatic, 1 part of chloride of iron to 500 of distilled water, sweetened to taste. One tablespoonful to be given every hour, or oftener, if necessary. This formula suffices to check the fiercest hemorrhage within twenty-four hours. The same formula, without sugar, forms a useful uterine injection or astringent lavement in cholera or colliquative diarrhœa. 3. A hæmostatic and resolvent ointment is composed of 4 to 15 parts of chloride of iron to 30 of axunge.

In a letter in the *Medical Gazette*, August 27th, Mr. J. Zachariah Laurence states that having, a few months ago, drawn the attention of the profession to the powerful local styptic properties of the *solid* perchloride of iron, he has since that time found a superior method of employing it. "If the solid perchloride of iron be kept in a bottle, a small portion of it after a time deliquesces into a thick brown fluid, which is constantly kept in a state of super-saturation by the undeliquesced portions of the salt. This liquid, applied by means of a spun-glass brush to a bleeding surface, arrests the bleeding almost instantaneously. This mode of application is particularly valuable in applying the styptic to such cases as excision of the tonsils, bleeding from the deeper-seated gums, &c."—*Pharmaceutical Journal*, Oct., 1859.

6. *Alum Lozenges in Affections of the Throat.*—M. Argenti, of Venice, proposes, as a substitute for alum gargles in affections of the throat, lozenges formed of alum, sugar, and tragacanth, mixed up with diluted laurel-water, so as to form lozenges, each containing a suitable dose of alum. The mass is to be well manipulated, and, after division, to be put on a sheet of paper and dried by a gentle heat. The lozenges keep well, and form an agreeable medicament, which, by aid of the saliva, becomes effectually applied to the parts. A pharmacien of Paris has for some time past prepared chlorate of potass in the same manner.—*Med. Times and Gaz.*, Dec. 3, 1859, from *Bull. de Thérap.*, tome lvii.

7. *New Method of applying Chloride of Zinc.*—Dr. G. W. Spence recommends (*Lancet*, Oct. 29, 1854) the following formula for the preparation of a paste or magma of chloride of zinc:—

"Dissolve fifty grains of prepared chalk in two drachms (by measure) of commercial muriatic acid; dissolve a hundred and fifty grains of sulphate of zinc in two fluidrachms of boiling water. When required for use, mix the two solutions, and the result will be a paste weighing nearly an ounce, and containing about one-sixth of pure chloride of zinc. The proportions are nearly, but not exactly, those indicated by the atomic weights. A little study would easily produce a paste of harder or softer consistency."

8. *A New Disinfectant for Dressing Putrid Sores and Ulcers.*—Considerable discussion has recently taken place in the French Academy respecting a new preparation, introduced by MM. Demeaux and Corne, for dressing and disinfecting putrid sores and ulcers. It consists of a mixture of 100 parts of commercial plaster of Paris in very fine powder, and from one to three parts of coal tar. This mixture forms a powder of a more or less grayish colour, and a slightly bituminous odour. For application, it may also be made into a paste with olive oil, which binds the powder together without destroying its absorptive power. The following are the properties of this substance, as described by the above gentlemen: A gangrenous sore, with an abundant fetid suppuration, treated with this dressing, is immediately freed from all disagreeable odour, and the bandages, even after 24 or 36 hours, exhale no more odour than if taken from a simple fracture. An ulcerated cancer producing a fetid serous suppuration, dressed with this substance, is entirely deprived of odour as long as the dressing remains on. So also the linen saturated with pus, cataplasms impregnated with the suppuration, &c., placed in contact with this substance lose all their disagreeable odour; the infectious liquid produced by gangrene, clots of decomposed blood, tissues in a state of advanced putrefaction, treated with this substance, are immediately disinfected. Its action appears to be to arrest the work of decomposition; it removes the insects, and prevents the production of maggots. The consistence acquired, either by the powder alone or the paste with oil, does not cause the least pain to the patient, or harm to the sore. Its application may be indirect or direct, the latter produces no harm, but rather exercises a detersive action favourable to cicatrization. This dressing has the double power of disinfecting the pus and other morbid products, and of absorbing them; the last circumstance is of the greatest importance, because it enables the use of lint to be dispensed with. Fifty kilogrammes of this powder may be made in Paris for one franc. M. Velpeau, at the Hôpital de la Charité, and several other French surgeons have employed this preparation with great success, and speak very highly of its disinfecting properties. Mr. Crace Calvert, of Manchester, has addressed a letter to the French Academy, in reference to this subject, pointing out the great variation which exists in the composition of coal tar, and the consequent necessity for more accurately ascertaining to which of the constituents the disinfecting properties are really due, in order to insure the uniform action

of the preparation. From the results of his own experiments he considers that the antiseptic properties of the tar are entirely due to the carbolic acid present. He states, that a corpse injected with a weak solution of this acid, was preserved from decomposition for several weeks; and that a piece of flesh steeped in carbolic acid, was exposed to the weather for three years without change. He also states that a small quantity added to urine will preserve it from decomposition for some weeks: and that it is also capable of preventing the gallic fermentation from taking place in the solutions of tanning substances.—*Pharmaceutical Journal.*

MEDICAL PATHOLOGY AND THERAPEUTICS, AND PRACTICAL MEDICINE.

9. *On the African Fever on the Lower Zambezi.*—The *Medical Times and Gazette* (Nov. 12, 1859) contains a highly interesting letter from Drs. LIVINGSTONE and KIRK to Sir James Clark, on this subject, the principal parts of which we proceed to lay before our readers.

"The first thing," Drs. L. and K. say, "which naturally attracted their attention as medical men was the fever, which has proved one of the greatest barriers to the advance of civilized nations into the interior of Africa.

"They enjoyed considerable facilities for observing the disease during the last twelve months, not only among those of the expedition, but likewise among the Portuguese and natives; and their experience having been very different from that of others, they deem it desirable to lay the results before our medical brethren.

"About a month was spent by the expedition in endeavouring to find an opening through the Delta, from the sea to the main river.

"This part may be described as abounding in mangrove swamps and damp plains covered with gigantic grasses. The mangrove swamps emitted a most offensive smell, and gave us the impression that they were most fitly named, 'the hot-beds of fever.'

"Above the Delta the river is remarkable for the quantity of fine sand which it carries in its waters, and deposits everywhere in banks which during about half the year are exposed to the sun; there is comparatively little mud, and in this respect as well as in the greater height of its banks which are also of sand, it differs greatly from the rivers of the west coast.

"The mountain of Meramhalla, 4,000 feet high, appears to the east of Senna, and a range of hills on the north bank of the river stretches from that village up to Lupata, above which the country is hilly, and the banks of the river rocky.

"Warned by the fate of the 'Great Niger Expedition,' it was resolved that no unnecessary delay should take place in the Delta, and that the prophylactic use of quinine should be tried.

"The season chosen for entering the river was the winter (from May to August), the most healthy time for Europeans, though not the most favourable for navigation, and during the stay of the expedition among the mangroves not a single case of fever occurred among the members, or among the officers and men of the *Pearl*, and H. M. S. *Hermes*, who accompanied it.

"Quinine was taken regularly by all the Europeans, with a single exception, to the amount of two grains in sherry wine daily; and we were quite disposed to attribute our immunity to the prophylactic so much praised for its efficacy on the Niger; although the former experience of one of us suggested its total inefficiency to ward off an attack.

"Three of our number became affected with incipient cinchonism; in their case the dose was lessened. We seemed always to be on the verge of cinchonism, as an additional dose could produce deafness and ringing in the ears to an intense degree in the course of a few hours.

"The following is the number of those who escaped without a single case of sickness, although exposed to hard work in the sun, and frequently sleeping in the boats in the lower part of the Delta: 16 officers, 37 seamen, 12 Krumen, and 2 boys from Sierra Leone.

"Three of our number were left in charge of goods on an island about twenty miles above the mangrove swamps, but probably not beyond their influence. The soil was of stratified sand, with an alluvial layer on the surface, covered with grasses. The neighbouring country presented the same aspect as the island, and was similarly constituted. Previous to this there had been hard work and constant excitement. Those left on the island, although less exposed, had a comparatively inactive life. They had not been many days alone when two of their number became sick.

"Mr. B—— was seized with slight rigors, severe headache, delirium, with contracted pupils. These symptoms were sudden, and followed an imprudent course of exposure to the sun. Although removed in a few hours, they speedily returned after renewed exposure; but this time more severe, the full bounding pulse, dry tongue, and hot skin showing the intensity of the fever. Vomiting, which now commenced, proved the most troublesome symptom, and became an obstacle to all treatment, as remedies were not retained beyond a few seconds. Although the other symptoms abated after twelve hours, vomiting continued, and soon the disease returned in a more severe form, running on to muttering delirium, with involuntary picking of the bedclothes.

"When on the verge of coma remedies began to be retained, and the action of a large dose of calomel with jalap resin relieved the cerebral disorder, and, by reducing the irritability of the stomach, allowed quinine to be given. Convalescence was very rapid; in a few days all trace of the disease had gone.

"A fortnight afterwards Mr. B—— was again seized with the same symptoms, vomiting again being the great obstacle, and, from its continuance after the others had been subdued, rendering the convalescence slow. Loss of memory and muscular weakness continued for some time after this attack. While Mr. B—— was sick, Mr. C. L—— had fever also, but in a very different form, and we did not then recognize the two as being the same disease. In him the symptoms were those of a cold, such as we see in Europe—at first frontal headache, pain in the back and limbs, lassitude and indifference to what went on around; this state was followed by one in which he lay without speaking, headache had gone, the pulse was small and thready; the skin at one time burning hot, at others coated with a clammy perspiration. In this case slight diarrhœa had continued from the beginning. Quinine was tolerated; but although the constitutional action was evident, yet the fever did not abate until a mercurial purgative had been given.

"These were the first cases of fever among us, nor did we see more for some time afterwards.

"In the month of August all the goods had been conveyed as far as Shupanga. Two officers were left there in charge, while the steam-vessel proceeded to Tette, taking with her those who had suffered when at the island.

"At this time the Portuguese were engaged in war against a party of rebels, and the army being destitute of medical appliances of every description, an opportunity was offered of observing the fever and other diseases in their worst forms among those exposed without proper shelter or food, and in subjects frequently worn out by constitutional disease.

"The commanding officer was the first case we were requested to see: he had obstinately refused all remedies, but being then in a state of coma, and unable longer to refuse, an active purge was given, followed by thirty-grain doses of quinine, which soon restored health. In him there had been no other symptom beyond those of severe constitutional fever running on rapidly to coma. This is the type most frequent in the lower parts of the Delta, especially at Quillimane. In the vicinity of Tette it is seldom fatal. The limited experience we here had seems to indicate that the type once established has a constant tendency to recur. Should further observation confirm this, it would become of importance to send all Europeans on their arrival to the higher lands; so that, should they be subject to fever, they might have it in its milder form first, and carry that with them to the more unhealthy localities.

"While the party at Shupanga enjoyed good health, notwithstanding the partial discontinuance of quinine, several cases happened on board the steam-vessel. We may mention that the accommodation on board was both very scanty and very uncomfortable. Water running into the cabin while the vessel was under steam, so as to keep the beds constantly wet beneath; fortunately the weather was dry, or the rain would have poured in from above also, as we subsequently experienced.

"Mr. R——, the engineer, had taken quinine with unvarying regularity, had an excellent appetite, and seemed to enjoy the climate; in working the engine he was obliged to see the fire lighted at 2½ A.M., in order to have steam by 7 A.M.

"An officer had shifted his bed through the night, so as to prevent Mr. R—— getting his clothes, and he proceeded to light the fire in his shirt; the consequence was pains all over the body and limbs, the bones being especially sore, the face flushed, eyes suffused, headache, and quick pulse. The bowels had been regular, and the tongue clean. A pill composed of resin of jalap, calomel, rhubarb, and quinine, which had formerly been found efficient in fever, was given, more as a precautionary measure, than from a belief that this was a case of the complaint. It seemed more a common cold than the African fever. As soon as the remedy had operated, the symptoms abated. Quinine was then given, and one dose of ten grains produced severe cinchonism, from which, when he recovered, he was quite well without loss of strength.

"Towards the end of the rainy season the members of the expedition were divided, those who had previously suffered from fever remained at Tette, while we went down the Zambezi to the sea, and explored the River Shine, both very unhealthy districts. While one of us was exposed to sun and rain navigating the vessel, and ashore superintending the wooding, the other was engaged botanizing among grass jungles and mangrove swamps. Yet both of us escaped entirely. The use of quinine had been completely abandoned, and we are inclined to attribute our good health to the regular and active exercise which both these occupations imply. In this respect our experience corresponds with that of the Portuguese residents, who assert that while actively employed they enjoy good health.

"While we explored the high lands around Lake Shirwa the steam-vessel was left in the River Shine, under the care of quartermaster Walker. We were absent twenty-four days. Walker was seized with fever the day we left: it commenced suddenly, though he had taken quinine regularly. On our return we found that he had been delirious most of the time, and the fever had shown no signs of abating; but the action of purgatives, followed by quinine, soon restored health, and in subsequent attacks, when at the sea-coast, among the mangroves, no difficulty was experienced in cutting short the attacks at the beginning.

"Our own experience in the high lands between the Shine and Lake Shirwa during twenty-four days, when we were exposed in the early hours to the dew from the long grass, continuing the march without interruption throughout the remainder of the day over rough country under the tropical sun, and then sleeping in the open air, and yet enjoying perfect health, as did also the natives who were with us, shows clearly that there exists within a short distance of the coast a healthy region well suited for the residence of Europeans.

"This region is elevated above the sea from 3,000 to 4,000 feet, and shut off from the coast lands by the range of high mountains to the east of Lake Shirwa. It is of easy access by the Shine, which flows at the foot of the hills, and is navigable the whole distance. To the north, the southern extremity of a chain of lakes, which extend far into interior of the continent, reach within thirty miles of the River Shine. This elevated region may be looked on as the entrance, by means of these inland seas, to a great part of Central Africa, cut off hitherto from communication with European nations by the unhealthy lands which bound the coasts.

"The result of our experience has been to discontinue the daily use of quinine. It had been persevered in long after the conviction of the members had been against its prophylactic power. It is our conviction that we owe our escape from the disease far more to the good diet provided for us by H. M. government than to the use of quinine. We have been as fully exposed to the malarious influence as any party is likely to be. The vessel in which we have had to navigate is one which takes in so much water that our beds are constantly damp, and often rotten beneath, with a quantity of water in the bilge of the ship. Yet we have found the fever quite amenable to treatment when taken early, and attention paid to any local congestions which may manifest themselves. Let it not be thought that we undervalue quinine, to it we trust for the removal of the disease when given after purgatives; in all forms of the fever we have found it of the greatest value, and three doses have always proved sufficient to induce the constitutional action even in those who have not been taking it previously.

"We have found the fever assuming a formidable type only when permitted to go on unchecked for some time in those exposed to great fatigue, damp, and poor diet, or when the irritable state of the stomach prevented the administration of quinine.

"In regard to the complications most frequently seen, among ourselves vomiting has been the most troublesome, and blistering over the stomach has seemed the best means of stopping it. We have fortunately escaped without more serious inflammatory lesions of the internal organs; but among the Portuguese two cases have been observed with pneumonia; both proved fatal—the tartrate of antimony seemed to have no effect, while stimulants were equally powerless when once sinking had commenced. Enlargements of the spleen, when of recent date, have yielded quickly to the use of the sulphate of iron and quinine.

"The ship's company, consisting of Krumen, have showed no greater immunity than the Europeans. The experiment of quinine was made with them, but its prophylactic action proved equally feeble as in our own case."

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10. *Specific Chemical and Microscopical Phenomena of Gouty Inflammation.*—Dr. A. B. Garrod, in a paper read before the British Association at its late meeting, remarked that many and discordant views were held concerning the nature of gouty inflammation, and such diversity of opinion arose from the fact, that, up to the present time, no characteristic structural change had ever been demonstrated to accompany it. The object of his communication was to supply that deficiency, and prove that special chemical and microscopial phenomena invariably attend true gouty inflammation. After alluding very briefly to the views held by the ancients, and within the last century by Murray, Forbes, and Wollaston, and by Cullen and his followers, and of the difficulties which each had to contend with in applying their hypotheses to the explanation of the various symptoms of the diseases, he proceeded to speak of his discovery of the constant presence of uric acid in the blood in gout, and his subsequent researches in the nature of that disease. From these he first drew the three following conclusions: 1. In *health*, the blood contains minute traces of urate of soda and urea, and probably of all the principles destined for excretion; but the quantities are so small, that the most careful and refined analysis is required to demonstrate their presence. 2. In *gout*, the blood is invariably rich in urate of soda, and uric acid can be readily crystallized from it. 3. In by far the greater number of diseases the blood is free from an abnormal quantity of uric acid, but in certain cases of albuminuria, lead-poisoning, and other affections, its presence can be demonstrated, and still no gouty inflammation ensue. Lastly, in many gouty subjects the same condition exists in the intervals of the paroxysms. From these conclusions, Dr. Garrod considered it evident that something more than the mere presence of urate of soda in the blood was required to produce gouty inflammation, and his next object was to ascertain its nature. For this purpose a careful examination of the joints which had suffered was required, and within the last few years many opportunities had fallen to his lot. The subjects of these examinations are divided into four classes. 1. Subjects of chronic gout with extensive chalkstones. 2. Subjects of gout with no appreciable deformity, and no visible deposits of chalkstones, except one or more specks on the external ear. 3. Subjects of gout in whom no trace of chalky matter was externally visible, and in one case only eight attacks of the disease had occurred. 4. Subjects in whom only a single joint (the ball of a great toe) had been affected with gouty inflammation, or in whom

some joint had only been once slightly inflamed. These examinations proved beyond the possibility of doubt, that in the very slightest forms of the disease, as well as the most severe, a structural change invariably occurs, and that this change, when once produced, remained, if not permanently, at least for a very lengthened time. After detailing the microscopical and chemical characters of the deposit producing this change, Dr. Garrod finished his communication by stating that he considered the facts which had been brought forward warranted him to conclude that—"Specific, chemical, and microscopical phenomena invariably accompany gouty inflammation, and these consist in the deposition of urate of soda in a crystalline form within the cartilages and ligamentous structures of the joints, and that such deposition is altogether pathognomonic, never being found in any disease other than true gout;" and again, that "Such deposition is probably the cause, rather than the effect, of the inflammatory action." Lastly, the author pointed out the great importance of ascertaining the true nature of the disease as a means of conducing to its rational and successful treatment.

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11. *A Brief Review of the Pathology of Angina Pectoris, with Cases.* By WM. B. MUSHET, M. D. It must be but seldom that a number of cases of angina pectoris are presented to one practitioner. Opportunities of autopsy, in fatal instances, must yet more rarely occur, the irregular paroxysmal character of the disorder conducing to its unfrequent appearance in hospitals and other public medical institutions, and, when encountered in private practice, the prejudices of relatives and friends for the most part opposing a barrier to inspections after death.

I therefore venture to publish the following cases, and previously to cite various eminent authorities as to the nature of the disease, the difference of opinion and statements amongst which, to my mind, leads to the irrefragable conviction, that we either know very little about its pathology, or that it is an *accidental phenomenon, independent of and superadded to* the special organic affections with which it has been observed to be associated. Dr. Heberden's description is generally regarded to be correct, as he was the first to draw attention to the disease, and his account is most usually followed, although it may be remarked that Dr. Parry and others differ from this physician as to the nature and symptoms of the malady in question.

According to Heberden (*Commentaries*, art. *Pectoris Dolor*) "There is a disorder of the breast marked with strong and peculiar symptoms . . . . not extremely rare. The seat of it, and sense of strangling and anxiety with which it is attended, may make it not improperly be called *angina pectoris.* Persons are seized whilst they are walking, more especially if it be up hill, and soon after eating, with a painful and most disagreeable sensation in the breast, which seems as if it would extinguish life . . . . but the moment they stand still all this uneasiness vanishes. . . . . Males are most liable to the disease, especially such as have passed their fiftieth year. . . . . Varieties may be met with. Some are seized standing still or sitting, or upon first waking out of sleep, and the pain sometimes reaches to the right arm, as well as to the left, and even down to the hands." Heberden saw nearly one hundred cases, one of which was in a boy of twelve. He believed it to belong to the class of spasmodic, not of inflammatory complaints. He adds, "In one case a very skilful anatomist could discover no fault in the heart, valves, or arteries, or neighbouring veins, in opening the body of one who died suddenly of the disease, except some small rudiments of ossification in the aorta."

Dr. Parry, of Bath (*Edinburgh Medical and Physical Dictionary*), differed from Heberden, and called the affection "syncope anginosa." He maintained, in the true disease, that there is neither dyspnœa nor palpitation of the heart, and that angina pectoris is a mere case of *syncope* or fainting, differing from common syncope only *in being preceded by an unusual degree of anxiety or pain in the region of the heart,* and in being *readily excited* during apparent health, by any general exertion of the muscles, more especially that of walking. He ascribed it to *ossification of the coronary arteries.*

Dr. John Wall, of Worcester, in a letter to Dr. Heberden in 1772, reminded the latter that he (Dr. Heberden) acknowledged that he never saw any one opened who had died of this disease. Dr. Wall then proceeds to detail the appearances presented on examination of the body of a person who had died of the affection, and his statement of the symptoms and *post-mortem* inspection is remarkably exact, I deem no apology requisite for the transcription.

Dr. Wall lays great stress "on the pain under the sternum, extending on each side across the breast in the direction of the pectoral muscle, and affecting one or commonly both arms, exactly where the muscle is inserted into the os humeri." This physician met with thirteen cases, and of these ten died suddenly.

"The subject examined was sixty-six years of age, and had been six or seven years subject to the complaint. He was a short, well-made man, inclined to be fat, who, in the former part of his life, had had several very severe attacks of the rheumatism. For two or three years he only felt a very slight pain and tightness across the breast and arms, upon walking a little faster than ordinary. By slow degrees this increased, till at last he could not walk, but in a very slow pace, and with great difficulty. He could not go up stairs, nor lie down without bringing on a dyspnœa, or rather a sense of suffocation. He was free from cough till towards the latter end of his illness, and then a very troublesome one came on, attended with a hoarseness. His pulse was never irregular, but always small, and during the paroxysm it sank so much under the finger, that it could hardly be felt. He died after having struggled in the fit about two hours.

"On inspection, the surface of the pericardium was covered with fat, nearly an inch in thickness. The lungs were greatly distended with very dark blood. They were full and hard. and in the cavity of the thorax was a very considerable quantity of an aqueous fluid. Cutting into the lungs, frothy mucus, mixed with something purulent, and of a fetid smell, issued from every part, but chiefly from the divided bronchi. . . . Upon opening the pericardium, the heart appeared of an enormous size, and was covered with a great quantity of fat. The pericardium contained not less than a pint of fluid. Upon examining the heart, no part appeared diseased, till we opened the left ventricle, and there the semilunar valves placed at the origin of the aorta were found to be perfectly ossified. They did not, as usual, lie flat upon the divided orifice of the vessel, but stood erect, and appeared to be immovable. They were entirely osseous through their whole substance, but the ossification was formed unevenly, and as it were in spines, some parts being near a line in thickness, and others thin, like a connecting membrane, but perfectly bony. The aorta at its curvature was considerably enlarged, and for near an inch from the heart was in part ossified, there being several bony scales or laminæ on it, but not connected with one another.

"The origin of the disorder," says Dr. Wall, "is here evidently to be traced from the induration of the semilunar valves, which existed probably in a less degree for several years, and increased gradually till it came to a bony hardness and immobility. It is possible that this induration of the semilunar valves may not always be the cause of the disease, though it seems not improbable that some malformation in the heart, or vessels immediately proceeding from it, may be so. Indeed, when we consider how frequently such indurations in the valves of the heart have been found, that the disease in question does not come on till a person is advanced in years, and, consequently, until a rigidity in every part naturally comes on, we shall be inclined to imagine that a preternatural induration of the parts necessary to the circulation of the blood through the heart, may be the predisponent, if not the efficient cause of the disorder."

In a fatal case of Dr. Fothergill, "the only morbid appearance was a small white spot near the apex of the heart;" and in an instance recorded by Dr. Haygarth, "the heart, lungs, and pericardium were perfectly sound."

Referring to more modern authorities, we find that Laennec arranges angina pectoris under *neuralgia of the heart*. He says: "It is a spasmodic affection, which returns in paroxysms after longer or shorter intervals. . . . Angina pectoris, in a slight or middling degree, is extremely common, and exists very frequently in persons who have no organic affection of the heart or large vessels. It is certainly true that this affection frequently coincides with organic disease, but nothing proves, even then, that it depends upon such diseases, inasmuch as they are of various kinds, and as the angina exists without any of them. Of subjects examined, who had laboured under this disease, *in none did I find the coronary arteries ossified.* One died suddenly during an attack of angina, and such a result need not surprise us, when so severe a nervous affection coexists (as in this case) with extensive hypertrophy." Dr. Hope "thought the disease to be owing to structural disease of the heart or great vessels, in which some portion of them was deprived of their elasticity by osseous, cartilaginous, or steatomatous degeneration, and that pain was dependent on overtension of the rigid portion.

Dr. John Forbes (*Cyclopædia of Practical Medicine*) seems to consider it doubtful whether angina pectoris would prove fatal in the absence of structural disease of the heart. He observes, "there is reason to believe in the few cases of fatal angina, in which no organic lesion was found on dissection, the heart was not exactly of just proportions, or of perfectly sound structure."

Dr. Wood, of Philadelphia, regards "neuralgia of the heart and angina pectoris as identical, as though angina has been frequently found in connection with organic disease of the heart, yet frequently also no such affection has been detected after death, so that it must be considered as essentially nervous."

Dr. Copland (*Dictionary of Medicine*) remarks "in several instances, not the slightest morbid appearances could be detected, but more frequently the heart and large vessels in its vicinity have presented marks of disease, generally varied in its nature, and opposite as to its characters." This author is inclined to impute the affection to a species of neuralgia of the cardiac and pulmonary nerves. Dr. Walshe is of opinion that angina pectoris "is a neurosis, although he is disposed to think that a true angina cannot exist without organic disease of the heart."

Dr. Joy (*Library of Medicine*) states "we are disposed to side with those who believe that angina pectoris, at least in its less inveterate modifications, may exist, altogether independent of structural changes. It is only in the more aggravated and prolonged cases that such alterations have been very conspicuous."

Dr. Latham says "angina pectoris has existed where no form of disease or disorganization whatever has been found, either in the heart or in the blood-vessels nearest it." He thinks it to be "immediately *a spasm of the heart.*"

I shall now narrate the following two cases, one of which proved suddenly fatal, a careful *post-mortem* examination being instituted; the other in an old lady yet surviving, but which I regard as an undoubted example of the disease:—

CASE I.—E. H., aged seventy-eight, a remarkably hale, stout old man, retaining all his functions, and employed as a messenger, had suffered for some months from pain over the region of the heart, coming on paroxysmally, and occasionally passing down the left arm, though this latter symptom was by no means of constant occurrence. During the attacks, he experienced a feeling of sinking and constriction of the chest, and a difficulty of breathing, together with considerable anxiety. The dyspnœa was not habitual in the intervals, and he had but very little cough. The pain was not periodic, but came on at irregular times. Auscultation was not practised, but he was ordered sulphuric ether and ammonia, which afforded great relief. He fell dead on the stairs one evening about 8.30 P. M.

Examination of the body, eighty-four hours after death. Weather cool. The pupils were moderately dilated. The arcus was strongly marked. Rigor mortis was tolerably manifest in the lower limbs, less in the upper. There was slight œdema of the feet.

Head.—The vessels of the scalp were very turgid. The calvarium was remarkably dense. The dura mater was adherent to the skull anteriorly. The arachnoid was opaque at spots; and there was some fluid between it and the pia mater. The brain-substance was a little extra-vascular. A small amount of serum was found in the ventricles. About two ounces of sanguinolent fluid were found in the base of the skull. The sinuses at the base were filled with semifluid dark blood. The arteries at the base were atheromatous, not calcified.

Chest.—The heart was entirely adherent to the pericardium; the adhesion was firm, but could be broken down with the finger. On attempting to separate the membrane from the heart anteriorly, some of the substance of the organ was also removed. The heart felt flabby. It was elongated transversely, and there was a white patch near its base over the right part of the left ventricle, of about the size of a shilling, which had a slightly roughened feel. There was a corresponding patch on the opposed pericardium. About the apex were two or three gelatinous-looking cysts, which appeared to be beneath the serous membrane. A large quantity of clots, and a little, partly decolorized, escaped on section of the inferior cava (several ounces). There were also dark clots in the pulmonary artery and aorta, but the quantity of blood was small on the left side. The heart freed from blood weighed seventeen ounces and a half. Its structure appeared to be tolerably healthy to the eye, but fat encroached on its walls, especially at the apex, and at base of the right ventricle. Portions, from these situations, exhibited fatty degeneration under the microscope. The cavity of the right ventricle was dilated, its walls a little hypertrophied. Both auricles were dilated. The left ventricle was hypertrophied. The pulmonary valves were normal, but one segment was reticulated; they supported a column of water. The flap of the tricuspid valve next the septum was natural, but the other two were thickened and beaded with fibro-cretaceous deposit. The aortic valves appeared sound, but did not perfectly support a column of water. The mitral valve was healthy; the tricuspid orifice readily admitted four fingers; the mitral admitted all the fingers and thumb; the aorta and pulmonary artery appeared to be neither constricted nor dilated; but the former vessel displayed considerable atheromatous degeneration. The coronary arteries were pervious, and loaded with atheroma, but presented no appearance of calcification. The lungs were emphysematous and congested. There were old pleural adhesions on the right side, and slightly on left, and a few ounces of serum in the left side of the chest. No tubercle was present. The bronchial tubes were intensely injected, containing but very little secretion. There was no softening of the mucous membrane. The liver was contracted, with stellate deposits on the surface. The right kidney weighed five ounces; it was congested; the capsule separated well. The left kidney was also congested; it weighed five and a half ounces; the capsule separated, with a portion of the subjacent tissue attached. The bladder was distended. The spleen was normal. The stomach was empty, congested in patches. The intestines were also congested. The pancreas was hard and granular to the feel.

Case II.—Mrs. D., aged fifty-nine, unmarried, has usually had good health, and worked hard in service as cook and housekeeper. She first suffered from rheumatism at thirty-five. This was an acute attack, and disabled her for some months. She has since suffered at intervals from the disease, for which she was a short time ago under treatment. At irregular periods, for some years, generally when she has pains in her limbs, or is *flurried* or *excited*, though occasionally at other times, especially when out of health, she has experienced a sensation of spasm over the front of the chest, deep-seated, and inclining to the left side, and sometimes passing down the arm. "The feeling is very singular and crampy, and as if she were drawn together, and she feels a sort of stagnation, as if the heart stopped." During the attack, which is sometimes only momentary, and sometimes lasts for several minutes, she is quite conscious, and her sight does not fail. She has but very slight cough. Dyspnœa, palpitation, or globus never appears to be present, and there is no history or evidence of hysteria, though she is troubled with flatulence. Two or three attacks may occur in a month, or a year may elapse without their recurrence. They come on indifferently in the day and at night, and mostly when she is at rest. The climacteric epoch was not attended by much disturbance, but she had two or three seizures of epistaxis. Arcus is evident in both corneæ. Her pulse is regular, not intermitting or rigid. The heart-sounds are tolerably good, but feeble. Respiration is a little harsh. Pains of rheumatic character, chiefly affecting the muscles of the arms and calves, lately induced her to seek medical aid, and during her illness, the attacks described were of frequent occurrence, sometimes daily.

Ammonia, Dover's powder, iodide of potassium, quinine, etc., were prescribed, and in a week or two she became convalescent, the anginal symptoms disappearing with regained health.

How can we harmonize the discrepancies which have obtained amongst the profession, as to the symptoms and pathology of angina pectoris, ever since the first description of the disease?

Most authors admit the necessary association of *some* cardiac affection, and that the cardiac lesion is variable to which the angina is a supplemental symptom. Others regard it to be dependent on a particular morbid agency, as calcification of the nutrient vessels, induration of the valves, spasm of the heart,[1] etc., but the difference of opinion amongst these latter, and *post-mortem* appearances, sufficiently indicate that such doctrines are untenable and erroneous.

It is moreover evident, that every conceivable morbid process in the heart and great vessels may exist, in absence of observed symptoms of angina, as atheromatous and fatty degeneration, calcification and occlusion of coronary arteries, valvular disease, adherent pericardium, hypertrophy, dilatation, atrophy, coarctation or dilatation of the aorta, etc. Conversely, can angina be present in absence of all the diseased states enumerated? In some cases, not any morbid appearances in the heart or great vessels are reported to have been noticed after death; but these statements must be accepted with reservation, when we take into account the imperfect state of pathological knowledge which until lately prevailed, and we have no authentic proof that in these cases the individuals died suddenly in the anginal paroxysm, an event necessary to confirm the accuracy of the diagnosis. Again, fatty heart, a fruitful source of sudden death, was a change unrecognized by our earlier pathologists.

It is incontestable that angina pectoris either *can* or *cannot* be developed without appreciable structural alteration in the heart or great vessels. If the former proposition be true, the disease must be considered as a true neuralgia; and I affirm that such an affection is incapable of proving fatal *per se*.[2] If the latter be true, when death results during a paroxysm, it is more reasonable to presume that it is a consequence of the organic disease than of the superadded anginal (neuralgic?) symptom, which is clearly not necessary to explain the fatal issue, as sudden death is of frequent occurrence in cases of heart disease, in which angina has never been observed. Were it present, death might be attributed to what is, I believe, merely an accidentally associated neurosis.

It may be advanced, that the aggravated symptoms and anxiety experienced by patients are incompatible with the view of the angina being an unimportant element in the affection, but it is well known how timorous and depressed individuals become when suffering from functional palpitation or pain referred to the cardiac region; consequently, when similar symptoms arise in persons labouring under organic disease of the heart or great vessels, we can readily estimate the influence exerted on an obstructed circulation through the emotional system.

It is agreed that angina pectoris seldom announces itself before forty or fifty years of age, about which period disease of the heart commences to be fatal to any extent. When occurring in children and early manhood, I conceive the affection to be simply neuralgia (equivalent to angina pectoris *minus* heart affection), and such a notion is corroborated by a cure being, for the most part, effected in this class of cases.

On the whole, therefore, I regard angina pectoris as a neuralgic affection,[3] always connected with some heart disease (in which respect it differs from simple neuralgia), being an accidental complication of the latter, and only occasionally present, as when the sufferer is dyspeptic, out of health, or subjected to any influences which are prone to induce neuralgia in other parts of the system. Some, as Dr. Chapman, are of opinion that angina pectoris is a gouty or rheumatic affection; and it must be admitted that recorded cases tend to reveal its connection with these diatheses: and it is almost unnecessary to advert to the relationship of gout and rheumatism to neuralgia and diseased heart.

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[1] That this is not essentially true, is proved, as in many cases the pulse remains undisturbed during the paroxysm. And we cannot imagine an attack of angina, if dependent on spasm of the heart, to continue for half an hour and not prove fatal.

[2] Is there any physician of the present day bold enough to assert from theory, or who can attest from experience, that angina pectoris has ever proved fatal in persons with a healthy heart?

[3] The acknowledged efficacy of antiperiodic remedies strongly supports this conclusion.

I think this group of complaints may be well illustrated by the subjoined simple diagram.

. · ˙ Rheumatism (Gout) ˙ · .
Neuralgia . . . . . . Disease of Heart
˙ · . Angina Pectoris. . · ˙

Assuming the neuralgic origin of the disorder, it is interesting to consider the nerves implicated. That the heart is not the seat of suffering appears to be almost proved, as this organ is normally insensible, and even when seriously impaired by grave structural changes, and the varying situation of the pain (behind the sternum, on the left side, down the left arm, on the right of the thorax, at the insertion of the deltoid, at the bend of the elbow, etc.), appears inconsistent with such a presumption. A few, as Desportes, locate it in the pneumogastric nerve, but in opposition to this, the last-mentioned objections hold good. I am disposed to conclude, that the intercostal are the nerves involved, the differences presented by the symptoms in different cases being explicable by consideration of the particular nerve affected, in conjunction with the special coexistent organic affection, and reference to its anatomical connections and distribution.—*Brit. Med. Journ.*, Oct. 15, 1859.

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12. *On Diabetes.*—In an elaborate article on this disease, Prof. W. Griesinger inquires into its pathology and treatment. We extract some of his remarks in reference to the theory that the liver is the organ mainly at fault, which has been specially revived since Bernard's discoveries regarding the glycogenic function of that organ. The author denies the correctness of Andral's observation, that in diabetes there is post-mortem evidence of over-activity in the glycogenic function. In none of his cases was there any enlargement of the liver detected during life, and only in one of five cadaveric inspections was the organ found to be somewhat hypertrophied. In this case it was very convex, with a sharp edge, eleven inches and a half in the longest diameter, six inches in the transverse diameter, and the weight, with the gall-bladder, was sixty-three ounces; on the surface were a few asteroid injections; in the interior, many small, pale, dirty-yellow spots; the tissue generally was exsanguine, friable, and granular, and the gall-bladder contained much brown bile. A careful examination in the other four cases showed no anomaly of the liver. A comparison of sixty-four cadaveric inspections confirmed the author's observation that diabetes mellitus is not characterized by any peculiar morbid condition of the liver. Dr. Griesinger does not appear to have noticed any microscopic changes in the hepatic tissue, and the evidence he quotes with reference to the increase or diminution of the oily contents of the hepatic cells is contradictory; thus Frerichs states that the absence of oil is characteristic, while the reverse is affirmed by Beale; Forster, again, maintaining the tissue to be perfectly normal. It certainly is remarkable that if the liver is the organ mainly at fault in diabetes, we so rarely meet with it directly indicative of hepatic disease. Among 225 cases analyzed by the author, there were only two that exhibited hepatic symptoms, both having been preceded by icterus immediately before the appearance of saccharine urine. As an apology for pathology, Dr. Griesinger quotes some apparently contradictory statements by physiologists who have specially worked at the subject, and which it may not be uninteresting to reproduce.

"Exclusively animal diet does not diminish the quantity of sugar in the liver; exclusively amylaceous diet does not increase it." (*Bernard.*)

"With a mixed diet (partly amylaceous) there is much more sugar in the liver than with an exclusively animal diet." (*Stockvis.*)

"After an exclusively animal diet there is more sugar in the liver than after vegetable diet." (*Figuier.*)

"The liver of graminivora contains much more sugar than that of carnivora." (*Bernard.*)

"There is no material difference in the amount of sugar contained in the liver of graminivorous and carnivorous animals." (*Poiseuille and Lefort*, 1858.)

A careful examination of the evidence regarding the influence of treatment leads the author to the conclusion that, with the exception of alkalies, none of the remedies commonly used exert any directly curative effect. Nor did the exhibition of the carbonated alkalies do more than reduce the quantity of sugar secreted; they did not arrest the secretion or cure the disease. The details of these therapeutic observations are of much interest, and deserve a careful study. Still, though drugs can do little, the author is willing to admit that by avoiding injurious influences, by a suitable hygienic regimen, and by a generally tonic proceeding, much may be done to improve the patient's condition and to prolong life.—*B. and F. Med.-Chirurg. Rev.*, Oct., 1859, from *Archiv. für Physiologische Heilkunde*, Jahrg., 1859.

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13. *Two Essentially Distinct Conditions of the Kidney giving Rise to what is called Bright's Disease.* By Mr. DICKINSON. We extract the following from the *British Medical Journal*:—

The results of the author's minute examination of the kidney under disease, lead him to the conclusion that the conditions, called after the name of Dr. Bright, are capable of arrangement into two great classes; that in the one we have disease proper to the secreting surface of the tubes; while in the other the disease is essentially intertubular, and that the characteristic difference between the two is the presence in the latter, and not in the former, of external granulation.

The "tubular disease" includes all the varieties of the large smooth kidney; notwithstanding that pathologists have subdivided it, according to the predominance of some one material, into "fatty degeneration," "waxy degeneration," "desquamative nephritis," and many others. There are two distinct stages. First, the period of enlargement; secondly, that of diminution. In the first stage, the capsule is thin and unadherent; the cortex is much, the cones slightly, enlarged; there is no appearance of preternatural vascularity. Parts, indeed, may be bloodless, giving a mottled aspect. The microscope shows the tubes entire; but in the cortex they are choked up with their epithelial secretion, which is often in various stages of disintegration, or fatty degeneration. These are probably consequences rather than causes of the derangement, and result from the cells, formed in excess from the inflamed membrane, being of unhealthy composition. In the cones there is the same tendency to excess of epithelial secretion, but it finds a readier exit, and does not, therefore, so often accumulate there. The tubes here show rather a tendency to become filled with a glassy fibrinous material, studded with specks of oil, or cells of epithelium, which happen to be passing down, or blood corpuscles; and this is shed in the form of cylindrical casts. The casts, therefore, are formed almost exclusively in the straight tubes.

The second stage is rarely reached. It consists in an over-stretching and bursting of the tubes one after another, those nearest the superficies being first destroyed; and it appears that their contents are then absorbed. The tubes collapse, and the organ may be reduced below its natural size. The capsule becomes thickened and a little more adherent. The surface is still smooth, the colour unchanged. A section shows the gland to be chiefly composed of cone substance, and the remaining cortical substance is coarse, pale, and firm in texture, being reduced more or less to its fibrous nature; but there is no evidence of an increase of fibrous matter. The author agrees with Mr. Simon in believing that the cysts, often present in this condition, are developed out of epithelial germs, which are left on the walls of the ruptured tubules.

The "intertubular," or "granular disease," commences with slight thickening and adhesion of the capsule, with processes of fibrous-looking material passing from it into the interior of the gland; contraction of these follows, the points at which they originate become depressed, giving a superficial granulation to the exterior; and the tubes embedded in them, at first healthy, become gradually reduced to microscopic threads.

In what the author calls "chronic intertubular disease," there is generally diminution of size. The adherent capsule has a tendency to split into two layers; the inner one consisting apparently of fibrinous effusion. The surface is granulated, and fibrous processes pass from the capsule between the granules. The fibrous tissue of the cortical part is increased, and the tubulous waste. Some of the fibrinous material passes into the interior of the tubules, lining them and displacing the epithelium. Cysts are often present, and evidently result from transformation of the tubes, not, as in the tubular disease, from a change in the epithelium.

In the "acute intertubular disease," the granules are larger and more distinct, and there is more fibrinous exudation between and into the tubules.

The anatomical evidence in favour of the intertubular origin of the disease may be summed up as follows:—

1. Near the capsule an effusion is often seen obviously between the tubules.

2. Tubes are caused to shrivel by some influence which travels independently of their direction.

3. Tubes are sometimes divided into cysts, which can only be accomplished by a contractile force, external to themselves. In the smooth kidney this never occurs.

4. In most cases, some of the secreting tubes are found natural, as if they had been out of the way of the effusions; whereas, in the smooth kidney all are involved.

5. A decided difference exists in the contents of the tubes in well-marked cases of each sort. In one they are filled by their own morbid secretion, in the other they are occupied by a material which is foreign to it, and which is probably derived from without.

Of 357 fatal cases in St. George's Hospital, of which the particulars were collected by the author, 250 were granular, 107 smooth; of the latter the average age was 28 years, of the former 50 years; proving that the one disease is not a sequal or stage of the other. In no single instance has he known or read of the granular form resulting from scarlatina; and it rarely results from cold. Gouty or rheumatic diathesis was associated with the granular form in seventeen cases, with the smooth variety in only one, and that doubtful.

In examining the kidney, besides the ordinary mode of tearing the organ into shreds and fibres, it is the author's plan to prepare translucent sections, so as to show the tubes and Malpighian bodies in their relations to one another, and to the intertubular material.

A portion of the kidney is boiled in water, slightly acidulated with acetic acid. It is dried, and when hard a section can easily be cut from it, which, on the application of water, resumes its former bulk, and presents a beautiful picture of the anatomy of the kidney.

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14. *On certain Points connected with the Treatment of Renal Anasarca.*—Dr. Fuller read a paper on this subject before the Western Medical and Surgical Society. The points the author selected were—first, the cause of the epileptiform seizures and other head symptoms which arise during the progress of renal disease, together with the best mode of obviating them; secondly, the propriety of employing ferruginous preparations and renal stimulants in certain stages and in certain forms of renal disorders. Dr. Fuller observed, in regard to the first point, that although the head symptoms are commonly supposed to be due to the non-excretion of urea by the kidneys, and its consequent accumulation in the blood, many facts conduce to the belief that the mere existence of urea in the blood is quite inadequate to their production. Amongst the facts cited in proof of this position may be mentioned the frequency of head symptoms in cases of acute renal mischief, attended during life by extremely albuminous and even bloody urine, and determined after death by the large, smooth, mottled kidney; cases in which the urine is seldom of very low specific gravity, and in which a considerable amount of urea is excreted; and, on the other hand, the great length of time, the long series of years, in which patients suffering from

the small, dwindled, granular kidney, whose urine ranges from 1002 to 1008, will go on with their intellects unimpaired and their nervous systems undisturbed, in spite of the extreme scantiness of the excretion of urea. Dr. Fuller mentioned the case of one such patient, whom he had had under observation at intervals during the last fourteen years, the specific gravity of whose urine throughout that period had never exceeded 1007, and usually averaged 1004. The urine was not particularly abundant; the quantity of urea excreted was very small; yet the man, though languid, and unequal to long-continued bodily exertion, had never suffered in the slightest degree from disturbance of his sensorial functions.

Another fact, seeming to point to some other sudden and temporary alteration in the condition of the blood, some decomposition of the urea long existing in the blood, or some other unusual chemical change, as the cause of the convulsions and insensibility, is the suddenness with which these symptoms arise, and the speed with which they pass off. Until within a few hours before the attack there is usually nothing in the general appearance of the patient, or in the condition of his urine, to indicate a change for the worse; and when the symptoms pass off, which they do in a short space of time, there is no observable improvement in the general symptoms, no appreciable alteration in the condition of the urine. Nevertheless, the author drew attention to the fact that head symptoms are specially prone to arise when the patient is unduly lowered or depressed, and he urged the necessity of extreme jealousy in maintaining as healthy a condition of blood as possible, by regulating the supply of food, by enforcing exercise, encouraging the action of the skin, and in every way providing for the elimination of the effete materials of the body by a more than ordinary demand on the activity of the excretory organs; and, further, in avoiding all measures, whether dietetic, medicinal, or otherwise, calculated to exhaust or unduly depress the nervous centres. With a view to guard against this condition, he urged the expediency of maintaining a proper tone of the system by the constant use of diffusible stimulants, and by the occasional administration, for a lengthened period, of small doses of iron in a light bitter infusion.

In respect to the administration of direct renal stimulants, Dr. Fuller combated the opinion so often propounded, that when the kidneys are diseased our aim should be to avoid stimulating them, and to prescribe such remedies only as will increase the action of the other excretory organs. Observation, he said, had long since convinced him that the practice founded on this opinion is extremely inefficacious; and he maintained that the use of vapour-baths, diaphoretics, and purgatives, to the exclusion of diuretics and direct renal stimulants, is as false in theory as it is unsatisfactory in practice. He drew attention to the fact that Bright's disease is confined to persons in weakened health, and is essentially a disease of mal-nutrition, attended by general anæmia. Therefore, on the same principle as that on which stimulating applications are employed to relieve congested conditions of the throat, languid ulcers, scrofulous eyelids, and other seats of diseased action characterized by low congestion and mal-nutrition, he insisted that in these cases of renal mal-nutrition and passive congestion renal stimulants, such as cantharides and turpentine, should be employed in conjunction with saline purgatives, vegetable bitters, iron, and whatever may be necessary to improve the general health. He acknowledged that in cases of renal mischief, evidenced by acute desquamation of the uriniferous tubes, the propriety of such treatment admitted of doubt, and that the warm bath, dry cupping on the loins, and the exhibition of digitalis and brisk purgatives, generally prove more serviceable; but he cited cases to prove that even when desquamation is proceeding actively, as it does in most instances of scarlatinal dropsy, long after the feverish symptoms have subsided, the exhibition of iron and cantharides is often followed by the happiest results.—*Lancet*, Dec. 10, 1859.

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15. *Pathology and Treatment of Idiopathic Peripheral Neuralgia.*—Mr. H. LOBB read a paper on this subject before the Harveian Society (Dec. 1, 1859). He commenced by dividing neuralgia into—1. Central; 2. Peripheral; and 3. Reflected. Of the central, arising from disease of the brain or spinal cord, he did not speak. The third division he proposed reserving for a future communication. The second was divided into idiopathic, traumatic, and neuromatous. Idiopathic

peripheral neuralgia was described as a stabbing, darting pain referred to the course of a nerve, shooting down the nerve like lightning, coming on suddenly, lasting but a moment, and repeated at intervals; the pain is so acute as to be unendurable if continuous. The part or limb affected with this form of neuralgia is colder, and the skin supplied by the neuralgic nerve is more or less numb, not tender to the touch, the patient liking to be rubbed, and frequently grasping the part with the hands and pressing it. If the neuralgia has lasted any time, there is more or less paralysis in the muscles supplied by the accompanying motor nerve. The author then gave, at some length, his views upon the generation and distribution of nerve-force from the capillary circulation, in order to make his description of the pathology of this form of neuralgia intelligible. He described a sentient nerve as a conductor to the brain of sensations taking place at the periphery; neuralgia is not, therefore, a hyperæsthesia of its healthy function. During health a nerve has no sensation proper in itself; and if it be struck, cut, or torn, the sensation is referred to the parts to which it is distributed; but in this form of neuralgia it is the nerve itself to which the pain is referred as darting up and down its course. A sentient nerve was likened to an iron conducting wire of a galvanic battery, which, if of a certain uniform diameter, conducts a given quantity of galvanism without being perceptibly affected by its passage; but if a portion of the wire be much finer than the rest, it becomes red-hot, being unable to conduct the whole of the galvanism, the remainder correlating into heat. So in a nerve. From mal-nutrition, it is unable to conduct normal sensations to the brain; the nerve-current, by affecting the polarity of the nerve itself, gives the idea of pain in that portion of the trunk of the nerve, its peripheric terminations at the same time being numbed. The author considered the indications for treatment, therefore, to be increased and healthy circulation, arterial and nervous. After enumerating the usual methods of treatment, he considered the only agent capable of carrying out these indications to be the continuous galvanic current; and he recommended, as the only apparatus that can be adapted to the surface of the body, and capable of generating a sustained current, the Pulvermacher chain—producing a continuous current of galvanic electricity in one uniform direction, mild, yet sufficiently energetic for medical purposes. Mr. Lobb then described the method of applying the chain, and exhibited some experiments with its aid—as the decomposition of water, contraction of muscles, &c. In the treatment of idiopathic peripheral neuralgia he looked upon the Pulvermacher chain as a specific. Immediately upon adapting the excited chain to the part, a genial glow is felt—not mere warmth, but a sense of vitality in the part; the patient is aware of a life-giving agent, and immediately says that he is relieved; the neuralgia disappears, and sensitiveness of the surface returns. The paper concluded with several interesting cases in which the continuous galvanic current afforded rapid and permanent relief.—*Lancet*, Dec. 10, 1859.

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16. *On the Causes of the Independence of Bronchitis in relation to Pneumonia.*—M. Robin states (*Gaz. Méd.*, No. 2, 1859) that he has never seen the causes of the independence of bronchitis in relation to pneumonia stated by any author, and this, he believes, arises from the faulty notions which prevail as to the elementary structure of the organ of respiration. It is customary to represent the tissue of the lungs as a mere continuation or expansion of the bronchi, which is as incorrect as it would be to represent the uriniferous tubes of the kidney as a continuation of the urethra, bladder, and ureter. As long as he believed in this doctrine, M. Robin never could comprehend why bronchitis should not constantly be passing into pneumonia. Nothing, however, can be more distinct than the pathological anatomy and symptoms of the two affections, which may be sometimes observed co-existing, but never passing from the one into the other.

The differences between the two diseases, marked as they are, must remain incomprehensible to those who consider the entire tube as lined with an uninterrupted mucous membrane from the larynx to the extreme subdivisions into *cul-de-sacs.* The real state of things is, however, as follows: Having passed through a certain number of subdivisions, the bronchi, now no more than one or two millimetres in diameter, lose their portions of the cartilaginous rings, and have no longer transverse muscular fibres, elastic longitudinal fibres, or a mucous membrane separable from the bronchial wall properly so called. They no longer possess a prismatic epithelium with vibratile cilia—losing, in fact, all the characters of bronchi. The pulmonary or respiratory canalicules, erroneously termed ultimate bronchial ramifications, continue to subdivide and terminate in rounded or ovoid *cul-de-sacs* (improperly called bronchial or pulmonary cells), which at the period of birth are from five to eight hundredths of a millemetre large, and in the adult attain the size of one or two tenths. These canals have not the structure of the bronchi, but are characteristic of the pulmonary parenchyma. They are surrounded by intimately interlaced bundles of elastic fibres, mingled with fibres of the laminated tissue, formed of fibro-plastic elements, and of vessels. These vessels form on the interior of the canalicules (which present slightly projecting folds), a network differing from that of the bronchi. This network consists of large capillaries, which nearly touch each other, so as to leave intervals smaller than the capillaries themselves. It is distributed on the very tissue of the walls of the pulmonary canalicules (there being no mucous membrane separable from elastic parenchyma), and is only separated from the cavity of these conduits by a layer of pavement epithelium with large nuclei, which commences where the cylindrical epithelium of the bronchi ceases. Thus the pulmonary canals, in which hæmatosis is accomplished, have a different structure to that of the bronchi which convey the air necessary for respiration. It is not possible to detach a mucous membrane distinct from the pulmonary parenchyma and the laminated tissue, in which, or on the surface of which, the capillary network is distributed, as is the case in the bronchi still provided with cartilages. In this way, we may explain the rapid absorption which takes place in the lung, as compared with the slower absorbing power of the organs provided with mucous membrane—as also the easier rupture of these capillaries, with discharge of blood, or of substances injected by the air-passages. There is, in fact, as great a difference in texture between the bronchi and the pulmonary parenchyma, as between that of the excretory duct of a gland, and of the gland itself.

It will, therefore, be seen that affections seated in two portions of the apparatus so different, may well present great distinctions in their course, etc. But a still more important cause also explains the rarity of the extension of inflammation from the bronchi to the pulmonary tissue. Thus, in the case of bronchitis, the portion of the capillary system which is the seat of inflammation belongs to the general capillary system properly so called, and receives its blood from the aortic or red-blood system; but in the case of pneumonia, the capillaries of the lesser circulation, deriving their supply from the black blood of the pulmonary artery, are in question. It is at the expense of this black blood that the morbid products of pneumonia are formed, as in hepatitis it is at the expense of the black blood of the vena porta that abscess of the liver is produced. We know, in fact, that although the pulmonary artery accompanies the bronchi throughout their entire extent, it gives no branch to them, nor to the interlobular partitions, and that it does not anastomose with the bronchial arteries. The latter entirely cease at the points where, or at a little beyond where, the small cartilaginous nuclei disappear from the bronchi, *i. e.* where the bronchial canalicules are only one millimetre, or a little more in diameter. This is the exact spot where the capillary distribution of the venous artery begins to take place between the contiguous walls of the pulmonary canalicules, forming on their sub-epithelial surface a network of quite a special type of mesh-work, which is also found in the lesser circulation of all classes of vertebrate animals, even to the branchial plates of fishes. Beyond the bronchi, the bronchial arteries only furnish *vasa vasorum*, and branches to the interlobular laminated tissue, which extend as far as the pleura.

These circumstances supply not only an answer to the question proposed in this article; but also explain some of the differences which distinguish the nature and progress of inflammation of the lungs from that of other parenchymatous organs. It explains also the differences of pneumonia, according to age, differences not exhibited so decidedly in the inflammations of any other organ, and which arise, not only because the parenchyma and the respiratory canalicules undergo notable modifications, but also because modifications in its nature and course are produced upon the inflammation by the nature of the circulation. These are nowhere so decided as in the lesser circulation, which unites anatomically and physiologically the two sides of the heart, although its disturbances are often only caused indirectly, in consequence of lesions of the left side of the heart, instead of directly by changes on the right side.

Independently of the special type of distribution presented by the pulmonary capillaries, differing from that of the bronchial, their structure also differs in some points from that of the general capillaries. They are, in fact, amongst the largest of the body, and their parietes present smaller, more numerous, and more approximated nuclei than those of the other capillaries. It is, however, to be observed that the capillaries of the portal system in the liver present the same peculiarities of structure. These facts are not without their value, when we call to mind that inflammation is a disturbance of the capillary circulation.

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17. *Pain as a Sign of Disease of the Stomach.*—Dr. Habershon read before the Medical Society of London (Nov. 14, 1859) a paper on this subject. He first noticed the general absence of pain in disease of the mucous membranes, except where the orifices of their canals were affected; and of the very frequent immunity from actual suffering in many morbid states of parenchymatous viscera. But in serous membranes an opposite condition was found to occur, almost any change, and especially those of a sudden or acute kind, being accompanied by severe and agonizing pain; and of such a character and severity as to demand perfect rest, this rest being a very essential element in the alleviation of the disease. In pericarditis, on the contrary, when occurring without pleurisy, pain was very frequently entirely absent, as for many years shown by Dr. Addison; and rest in this case would be impossible. The immediate object of the communication being the consideration of *pain* in connection with *disease of the stomach*, he proceeded to show its value as an indication, or non-indication, of disease of that organ, by several propositions:—

1. That acute so-called inflammation and disease of the stomach may be entirely free from pain, if the mucous membrane only be affected. Reference was made to the gastro-enteritis of children, and to the symptoms of irritant poisoning. Several instances were adduced, in one of which a large dose of oxalic acid was taken; and except pain in the mouth and throat, there was no suffering, but the patient completely recovered. In a second, a case of poisoning by sulphuric acid, the patient lived eleven days; but except that arising from the action of the acid on the mouth and throat, there was no evidence of suffering, or of pain, tenderness, &c., at the stomach. The whole of the mucous membrane was destroyed, but the deeper structures were uninjured. In a third case, one of poisoning by a solution of chloride of zinc—Burnett's disinfecting fluid—no pain whatever was suffered for three months; but eight days before death pain came on in the left side. Ulceration of the mucous membrane was found near both orifices; near the œsophagus was an opening into an abscess between the spleen and diaphragm; and near the pylorus extravasation was prevented by adherent omentum. It was believed by the author that this abscess had only dated from the commencement of the pain eight days before death, when probably the deeper structures had become involved.

2. That organic disease of the mucous membrane alone—as, for instance, cancer—may be comparatively free from pain. Reference was made to the detection of cancerous secondary tubercles without previous symptoms; and a specimen was shown of a large villous growth from the mucous membrane of the stomach, of which no idea had been entertained, the orifices being free, vomiting absent, and no pain being present for many weeks before death. The patient died from advanced cirrhosis, and at the commencement of her illness had complained of burning pain at the stomach.

3. That disease extending to the muscular or peritoneal coats, produces generally severe pain, as in ordinary ulceration or cancer. Two instances were given in which the intensity of the pain was the most prominent symptom, and in which, after death, the author had detected branches of the pneumogastric nerve involved in the dense fibrous edges of chronic ulcers.

4. That over-distension of the stomach produces severe pain.

5. So also disease of the peritoneum covering the viscus.

6. The statement of Dr. Osborne, that the precise seat of gastric ulcer might be shown by the position of greatest ease, was briefly alluded to; but the author did not give a positive opinion on the subject. In the case mentioned where the pneumogastric was involved, and the ulcer at the posterior aspect, the patient was most comfortable when leaning forward and towards the left side, so far confirming Dr. Osborne's opinion.

7. That in disease of the lesser curvature near the pylorus, pain is sometimes experienced by the patient as soon as the food enters the stomach, and, in some cases, conveys the idea of disease at the œsophageal orifice. An instance was mentioned where, for many months, the affection was believed, by an eminent physician, to be at the end of the œsophagus, whereas the lesser curvature near the pylorus only was affected, and the mucous membrane near the œsophagus was perfectly free.

8. That many conditions of functional disease are entirely free from pain.

9. That the pain in many so-called functional diseases is often exceedingly severe, but is often produced by a mal-condition of the nerves or nerve centres, and arises from the intimate connection of the spinal and sympathetic nerve. Reference was made to the severe dyspepsia occurring in states of exhaustion, extreme nervous prostration, loss of blood, over-anxiety, and uterine disease.

10. That the effect of diseased condition of the pneumogastric nerve at its centre or peripheral branches, in connection with stomach disease, is one of great interest, and it is probable that pain is sometimes the result. The irritability of the stomach in cerebral disease, in disease of the supra-renal capsules, the dyspepsia in phthisis, &c., were alluded to, and several drawings of the nerve supply of the stomach shown.

11. That in many forms of functional disease of the stomach, accompanied with severe pain after food, *it was probable* that extreme irritability of the pyloric orifice existed.

12. That in functional, as in organic disease, pain often arises from distension of the stomach, consequent on chemical decomposition of the alimentary mass.

13. That absence of pain is sometimes found in consequence of the destruction of the pneumogastric nerves. An instance was given, where the whole of the lower part of the œsophagus was destroyed, the pneumogastric nerve exposed, and many branches truncated; fluids had passed into the posterior mediastinum, had burrowed beneath the diaphragm, and made an abnormal opening into the stomach. The patient had travelled, a few days before death, to Guy's Hospital from the North Foreland, and scarcely any pain was complained of, notwithstanding this extensive mischief.

14. That pain at the scrobiculus cordis, simulating disease of the stomach, often arises from spinal disease, the pain being referred to the extremity of the irritated nerve.

15. That severe pain at the scrobiculus cordis, also simulating disease of the stomach, is referred by some, and probably correctly so, to over-distension of the cavities on the right side of the heart, as we find in mitral valve disease, chronic bronchitis, &c. In these instances, the whole of the chylopoietic viscera and the branches of the vena porta are much congested, and the functions of several viscera imperfectly performed.

16. That cancerous disease of the stomach, with enlarged glands pressing upon the aorta, may be simulated by aneurism. In the latter disease, pain is sometimes very intense; and a case was referred to by the author, in which the patient died from the intense suffering, the false aneurismal sac not having given way; and, in dissecting the parts, the large branches of the sympathetic were found by him stretched out upon the sac. No other cause of death was found, after careful examination.

The author stated that these propositions were submitted to the society not with the idea that each was established, but as guides for further thought and observation.—*Lancet*, Nov. 19, 1859.

18. *On some of the Accidents produced by the Development of the Wisdom-Teeth.* By M. Robert.—The four last molars, vulgarly termed "wisdom-teeth," frequently cause, by reason of their slow development, various accidents which the treatises on surgery pass by almost without notice. An interesting and useful monograph might be written upon the subject.

The teeth are short and broad, and have short and straight fangs. They seem to remain behind the others, both in regard to their dimensions and the period of their apparition; so that at first sight, these teeth, which seem to have, so to say, undergone a commencing atrophy, might be expected to make their appearance without inducing irritation. But there are various circumstances which may render this difficult or even dangerous. Thus, it often happens that at the period of the evolution of the large molar it is found to have undergone deviation. As it is always cut at a late period, the other teeth, situated in front, compress its follicle, and distort and thrust back its alveolus. The tooth is thus often found deviating in front or behind, within or outwards. So great is the deviation that the alveolus is occasionally found hollowed out in the ramus of the jaw, the tooth having undergone such a reversion that its crown abuts directly against that of the second great molar. It is easy to see that the eccentric movement executed by the wisdom-tooth at the moment of its evolution, may become, as regards the neighbouring teeth, the jaw, mouth, gums, or even itself, the source of various more or less serious accidents, such as osteitis, periostitis, necrosis, inflammation of the soft parts, etc. This will be easily understood, if we consider the enormous power exerted by the tooth, the effects of which cannot be better compared than to those exerted by water, which, infiltrated into the crevices of rocks, violently separates their fragments, on expanding during congelation.

To these accidents of an inflammatory nature, must be added another, which is hardly ever absent, and which often exists alone during a variable period, viz., the pains that sometimes last for months or years, and depend solely upon the development of the wisdom-tooth. This persistent pain is a nearly certain sign of chronic inflammation caused by obstructed evolution; but sometimes this phlegmasia, under the influence of some slight appreciable cause, or sometimes without any appreciable cause at all, may become transformed into acute inflammation, giving rise to various serious affections of the hard or soft parts, as necrosis, periostitis, abscess, etc. Abscess may form either at the exterior of the jaw, or towards the mouth, whence the pus detaching the muscles and aponeuroses, may descend to the neck. In a case of Bérard's, the pus of an abscess which had formed in the mouth, descended to the subclavicular region, constituting a true migratory abscess, from the effects of which the patient succumbed. Sometimes it is on the side of the throat that the inflammatory symptoms are manifested, and then the enlarged tonsils may have to be excised. In other cases it is towards the velum or the uvula that the inflammation is directed. Thus, an instance occurred to the author in which this was the case, and the hypertrophied uvula, hanging upon the base of the tongue, gave rise to anorexia and vomiting, and other symptoms, which during several months gave rise to the belief in an affection of the stomach. They arose, however, from the inflammation excited by evolution of a wisdom-tooth; and when analogous symptoms are present, at an age in which such evolution takes place, its possibility should always be borne in mind.

These observations were suggested to M. Robert by the presence in his wards of three persons in whom the development of the wisdom-tooth had given rise to various accidents. One of these was a delicate youth of 22, who had suffered from severe pains in the mouth during several weeks. In the furrow between the cheek and the anterior border of the ascending ramus was a vast and very painful ulcerated surface, covered with a whitish deposit; and, lower down, the gum behind the third molar was likewise painful and swollen. The ulceration had been caused and kept up by the swelling of the gum, which itself depended upon the development of the wisdom-tooth. It was proposed to modify the condition of the ulcer by means of fuming nitric acid, and to freely excise the gum over the tooth. In the second case, a woman, aged 22 or 23, had suffered severe pains at the angle of the jaw during two years, and had every now and then inflammation and abscess in the vicinity. The gum had been incised with temporary relief, and now, after a severe attack of inflammation had been subdued, the tooth was found to be partially through, the gum which covered the remainder being ulcerated. This was excised, and the symptoms all subsided. In the third case, a robust man, aged 32, had suffered from his mouth, at the point corresponding to the last molar, during two years. Abscess, followed by an obstinate fistulous opening, occurred: but as the fistula opened near the chin, and all the teeth were sound, even an experienced dentist had not suspected the true cause. Another dentist, recognizing the nature of the case, drew the second molar, in order to give room for this new one, but without avail. The patient then came to M. Robert, who at once recognized that he had a dental fistula. These fistulæ have, in fact, their peculiarities, being slightly depressed, with the skin around them plaited or wrinkled, and when lying on the lower jaw frequently adhering to the bone. The fistula was traced back with a probe to the tooth, and the latter having been extracted, recovery soon took place.—*Med. Times and Gaz.*, Nov. 12, from *Gaz. des Hôp.*, No. 8.

19. *Hereditariness of the Epilepsy induced in the Guinea-Pig.*—One of the most interesting facts among those discovered by M. Brown-Séquard, is the production of epilepsy in the mammalia, and especially the guinea-pig, as a consequence of certain lesions of the spinal cord. He has frequently repeated these experiments, and with the same results. At a recent meeting of the Biological Society he related the results of the observations he had made during several years upon the young ones born of parents thus rendered epileptic. In some of these he has met with a very distinct epileptiform affection, with well characterized paroxysms, but differing somewhat from the epilepsy of the parents. In the latter, not only are there spontaneous paroxysms, but others may be induced at will, by irritating or pinching the skin of the face; but in the pigs which appear to derive their convulsive affection from their parents, paroxysms cannot be induced in this manner; while the form of those occurring spontaneously is not exactly the same. The animal is first seized with trembling, and then falling on its flank it agitates its limbs spasmodically. The young pigs thus affected have proceeded in about an equal number from epileptic mothers and fathers. Sometimes parents thus rendered epileptic by myelo-traumatism produce little ones, none of whom exhibit the affection, or while some do, others do not. M. Brown-Séquard has had under his observation a very large number of guinea-pigs, and while not denying the possibility of the fact, he has never seen a single animal present an analogous convulsive affection, unless it had previously undergone a lesion of the medulla, or was the offspring of a parent who had been rendered epileptic in this manner.—*Med. Times and Gaz.*, Nov. 12, from *Gazette Hebdomadaire.*

20. *Hypodermic Treatment of Disease.*—Mr. CHAS. HUNTER, late house-surgeon to St. George's Hospital, has published (*Med. Times and Gaz.*, Sept. 10) some interesting remarks on this subject with cases and experiments. The cases detailed are fifteen in number, including two in which the local injection of Dr. Wood was first tried. "A brief review of the cases is the more satisfactory for these reasons—1stly, because in all of them the same narcotic, the acetate of morphia, was used; 2dly, because they had all been under other treatment previously without avail, and in most of the cases it was the same preparation, administered either by the stomach, or skin, which had previously failed.

All the cases were affections of the *nervous system;* nine of the brain, two of the brain and spinal cord, and four of particular nerves.

Although a narcotic, and the same narcotic, was used in every case, it was not always with the same object; thus, in some it was to procure sleep, in others, to ease pain or allay spasm, and in others, again, to attempt to palliate or cure some neuralgic affection.

Three of the cases were *neuralgia*, which had all failed to receive benefit under other treatment, although in each case it had been very varied. The two first received great benefit, firstly, from Dr. Wood's plan, and subsequently from my own, as stated in the *Med. Times and Gaz.*, Oct. 30, 1858; but the ultimate result of the treatment in these two cases has not yet been given.

Case 1. The man with constant tic-douloureux of four years' duration went out cured, the injection of the morphia being at one time used three times a day, so as to keep up a full and continued influence to prevent, as long as possible. a recurrence of the attack; it was then gradually left off, and the man went out free from neuralgia about a week after the cessation of treatment. The injection was always made in one or the other arm, the site being varied each time; no local inflammation ever occurred, nor was there ever any sickness.

Case 2. The girl with neuralgia and disease of the eye went on with the treatment till the pain gradually diminished; she then left the hospital. The treatment in this case, owing to its nature, could only be palliative. The disease has now attacked the brain (having destroyed the eye), and she is now (June) being treated by this plan of treatment in another of the London hospitals, as nothing else seems to ease the pain or give her sleep. No sickness ever followed the injection of narcotics, but frequently did their administration by the stomach.

The third case of neuralgia was cured by a single injection, although the case had resisted many other forms of treatment. Sickness took place in this case, and was considerable.

The cases of delirium tremens were two. Morphia in the first, and opium in the second, had been given in large and repeated doses, with no decided effect. In both, the first injection caused sound sleep of many hours' duration; and both went out cured in a few days. There was no sickness in either case.

The cases of *mania* were two. They both showed that sleep could rapidly be obtained by the injection of morphia, which effect had not been obtained by doses as large, and larger, given by the stomach. There was no sickness in either case.

In the first case of *puerperal mania* the injection was used only once; sleep followed in eight minutes. The patient subsequently recovered by the internal administration of large doses of Battley's sedative. In the other case, several injections were employed, sound sleep following each time. There was no sickness in either case.

In both the cases of *wakefulness*, sleep was rapidly induced; and in one patient excitement, almost amounting to delirium, was quelled by a single injection.

In the case of chorea the effect of the injection was always very rapid, sleep resulting in about four minutes, if the quantity injected was large, and if small, the violence of the movements was diminished or arrested. No sickness was ever produced.

In the case of tetanus sleep resulted at once, although the spasms remained unaffected. In a second case of tetanus, in which this treatment has been used, two hours' sound sleep followed the injection, and afterwards the patient dozed for several hours; laudanum had been previously given every hour without effect. The spasms were never violent in this case, and were observed to cease during sleep.

Both cases of sciatica went out free from all pain—the one that was cured was a little sick after the first injection; in the other case, the pain returned in a milder form.

Such was the result of the treatment in the cases already given; the result was different in the various cases, even as the object was different with which the injection was employed. Sleep was the result in most cases, but not in all; spasm was quieted in some, and pain was relieved or cured in others by a single or by more injections.

With regard to the sleep occasioned by the injection, it must not be looked on as a necessary effect of the treatment—it may follow at once, after a time, or not at all, according to circumstances. Thus it may follow—*At once*, if the quantity injected is large, and the object is less to ease pain than to procure sleep. *After a time*, if the quantity is large (say one grain of morphia), and much pain exists; in which case the pain is generally quieted directly, and sleep follows in from fifteen to thirty minutes. *Not at all*, when the quantity injected is small, and there is much pain, spasm, or cerebral excitement going on, in which cases, as the quantity is small, the whole effect of the narcotic is expended either in subduing the pain and spasm, or allaying the excitement.

The Occasional Sickness.—In the fifteen cases, sickness occurred *in only two*, in one it was distressing, in the other but very slight.

In *another series of fifteen* cases, of which I have notes, sickness occurred in *four*, in one it was considerable, and in the others to no extent.

Consequently in *thirty* cases only *two* patients, both of them women of very nervous temperament, and both suffering from tic-douloureux, had considerable sickness; in the other *four*, all men, with sciatica, the sickness was trifling; in fact, the patients themselves thought nothing of it, nor did they think it due to the injection. This cannot be called a large proportion when it is recollected how often morphia causes sickness when given by the stomach; I have constantly seen it in quarter of a grain, and laudanum in equivalent doses, cause sickness, so administered.

The *time* when the sickness comes on varies; in the two cases in which it was severe, giddiness and nausea were felt almost immediately, then faintness, till in about five minutes sickness took place; in both it continued on and off for several hours, with intervals of sleep. In the four other patients the sickness did not come on for many hours, in fact, only as a kind of ultimate effect of the morphia after a good sleep."

This plan of treatment, Mr. H. admits, is no specific, and therefore *a due discrimination of cases ought to be made.* "The same caution is given by Dr. Wood in his paper on the treatment of neuralgia by *local* narcotic injections: 'Another caution I would offer is, that you choose the proper patient for the use of the remedy.'[1] When to employ the injection, and when not, must depend in the general way on the particular circumstances of each individual case, such as the nature of the disease, its urgency, the object in view, etc.

There are some cases in which I think the hypodermic injection may almost be employed *as a rule*, and be put in force *before time is lost* by the adoption of other measures. I mean those cases of high cerebral excitement, of delirium tremens, and of mania, in which the speedy administration of a narcotic is indicated. In this class of cases more than any other the value of the injection is seen. I have already detailed *seven* cases of this nature, and could give many more, but there hardly seems the necessity. In these cases, to procure sleep and allay excitement is the object, and that as soon as possible; the stomach is often irritable, or in such a state that it will not absorb medicines; the patients often refuse to swallow (as in Mr. Cutler's case); everything, in fact, points to the necessity of some more sure, speedy, and active mode of treatment than the more ordinary one of stomachic administration.

There are cases of sudden, violent, acute pain, in which the injection might also be tried as a *primary measure;* for instance, during the passage of a renal calculus, in such a case the pain is at times almost insupportable, and as the stomach gets quickly irritable, sickness often taking place, another reason is furnished for the trial of this plan.

Then there are cases in which the injection ought not to be tried at first, but after such general treatment as is clearly indicated has been first tried—such as purging, or the internal administration of alteratives or tonics. Tic-douloureux, sciatica, and many other neuralgic affections are of this class. In all such cases, due discrimination being made, it is astonishing what benefit follows the injection in most cases, and how quickly in many, a cure is effected by it when other treatment has altogether failed. It is often, too, in those cases the origin of which is most obscure, that the injection seems to answer best.

Rheumatism is a disease in which occasionally the use of the injection into the cellular tissue will be found highly serviceable. Two cases have been treated by it at St. George's Hospital."

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[1] My object in alluding to this passage (*British Medical Journal*, August, 1858) is this—that as I do not find localization to the painful part necessary, my plan is available in many *diseases* in which that of Dr. Wood is not, as mania, delirium tremens, etc. It is also applicable in some cases of pain and of neuralgia in which Dr. Wood's cannot be—viz., those in which the nerve cannot be reached for injection. There is, therefore, a greater need of caution to discriminate proper cases where the range is *wider*, than where it is more limited.

The choice of a narcotic, Mr. H. says, "must depend entirely on circumstances, such as the sex, the peculiarities of the patient, the disease, and the object in view. It is not my intention here to go into these points, as they require *almost* equal consideration before the administration of a narcotic by any method, but rather to indicate in this place the *most eligible preparations for injection.*

Tinctures may, and can be, used with good effect. Thus Mr. Burns used equal parts of the tinctures of opium and hyoscyamus.[1] I have employed both these tinctures separately, and have found this objection to them, that they cause a little hard lump beneath the skin which *may* last a considerable time, and gradually disappears if left quiet, and alone. There is not this objection if the tincture be evaporated to one-half or one-third, and be used while it is fresh.

Dr. Wood has used a solution of morphia in sherry wine as 'it would not irritate and smart so much as alcohol.' He also says that 'nepenthe' produces less sickness than opium, and is therefore preferable as an injection.[2] Professor Simpson has used a *solution* of the bimeconate of morphia in coccodynia.[3]

For my own part, I *prefer solutions to tinctures;* they are rapidly absorbed, they produce no irritation if properly made, and they have this advantage, viz., of exactness, so that no mistake need be made about the strength of the preparations, or the quantity injected.

A solution of the acetate of morphia is the preparation I have used more than any other, prepared with acetic acid, but so freed from excess of that agent that it causes not the least irritation.[4] Mr. Williams, of Liverpool, who has tried the narcotic injection in delirium tremens, has proposed to me the employment of the sulphate of morphia on account of its ready solubility.

A solution of the sulphate of atropine is a good preparation for injection, and not liable to irritate. I have several times employed it, and produced sound *sleep* with doses varying from the $\frac{1}{25}$ to the $\frac{1}{10}$ of a grain. The injection of this salt has been employed with a different object by Mr. Benjamin Bell, viz., to counteract the effects of opium poisoning as first suggested by Dr. Thomas Anderson."[5]

Chloroform, Mr. H. states, may be, with safety, injected into the cellular tissue in *urgent* cases; it rapidly produces cessation of spasm, and causes sleep. "In numerous experiments which I have made with this narcotic on animals, I find that the effect on rabbits, when injected in small quantities, is somewhat analogous to that of opium in small doses, but in larger is more productive of anæsthesia than of coma."

Having a patient suffering frightfully, Mr. H. states, "from neuralgia of years' duration, on whom all ordinary medicine was lost, I was tempted to endeavour to give him sleep and relief from spasm for a time by the injection of chloroform. Although accustomed for years to inhale, and even swallow, enormous quantities of that agent, and to take other narcotics in similarly large doses, the first injection of ♏xxx of chloroform, slowly introduced, caused almost instant quiet of spasm, and sleep in fourteen minutes. The injection of chloroform was several times repeated at intervals, at the urgent request of the patient, who each time obtained considerable relief from it. I left it off, however, on account of the local symptoms, which took place at some, but *not all*, of the places injected; and because of these local effects, I think the injection of chloroform is *not to be recommended*. These local effects were—firstly, pain at the moment of injection; secondly, in a few minutes the skin of the part injected became of a bright red colour, elevated, and tender to the touch; and giving, thirdly, for a short time, the feeling of crepitus. At the end of twenty-four hours all these symptoms disappeared, the swelling going away, and the redness being replaced by a brown stain like a macula. From ten to fifteen days after, nothing was to be seen or felt, although a sensation of tenderness or pain was still experienced in the part by the patient, *but no abscess resulted at any point.*"

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[1] Medical Times and Gazette, October 16, 1858.

[2] British Medical Journal, August, 1858.

[3] Medical Times and Gazette, July, 1859.

[4] Ibid., March 26, 1859.

[5] Edinburgh Medical Journal, July, 1858.

The following are Mr. H.'s practical conclusions:—

"1. That certain medicines may be introduced into the cellular tissue beneath the skin with safety and with advantage.

2. That medicines so introduced have a *general* as well as a local effect.

3. That the general effect of medicine so introduced is exceedingly rapid.

4. That this mode of administration is *more certain in its action* than stomachic doses are, for the *exact* amount introduced is known, and the whole of it takes effect, which *may* or *may not* be the case with stomachic doses.

5. Medicines are *more purely received* into the system by this method than when given by the stomach, in which organ they may become contaminated or decomposed.

6. A given amount of a medicine employed hypodermically has a greater effect than the *same* amount administered by the stomach; *it also acts more quickly.*

7. A given amount of a medicine employed hypodermically has a greater and more rapid effect than when employed *endermically.*

8. That the medicines for which this mode of introduction is especially applicable are the various *narcotics* and *sedatives.*

9 That the *diseases* for which this plan of treatment is especially indicated are for the most part *affections of the nervous system:*—

1stly. Where the immediate and decided effect of a narcotic is required.

2dly. Where narcotics administered by the usual methods fail to do good, and yet are indicated.

3dly. Where the effect of a narcotic is required, and the patient *refuses to swallow.*

4thly. Where, from irritability of the stomach, or other cause (such as idiosyncrasy, etc.), the patient cannot take the medicine by the stomach (Case 2).

10. That to produce a general effect, it does not signify whether the remedy be injected into the cellular tissue of the body or of an extremity.

11. That to relieve or cure a local neuralgic affection there is no necessity to localize the injection.

12. That whether the object be to treat a local or general affection, it seems advisable each time to change the site for injection, should it be more than once required."

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21. *Chorea Treated by Sulphate of Zinc.*—Dr. WM. H. STONE, Medical Registrar of St. Thomas's Hospital, states (*Med. Times and Gaz.*, Sept. 17, 1859) that during the year 1858, there were admitted into St. Thomas's Hospital 54 cases of chorea. Out of this number, 50 were put under the influence of three principal remedies. In 16 of these, the treatment mainly comprised the exhibition of sulphate of zinc; in 20, of arsenite of potash; in 14, of ferruginous preparations.

Of the 16 cases treated with sulphate of zinc, five were males and eleven females. The ages of all were intermediate between 8 and 16 years. Previous attacks had occurred in two cases only. Duration of previous illness had been one week in two cases; two weeks in three; three weeks in three; a month in two; two months in two; three months in one; four months in two, and a year in one case. The attacks were without known cause in four instances, from fright in four, from a fall in one, and followed previous illness in five cases. This illness was in one instance of febrile character, probably scarlatina; in another measles, and in three others acute rheumatism; of these latter cases one also suffered from cardiac disease, ultimately terminating in death. Two other cases, though not absolutely complicated with illness, showed evidence of being connected with commencing menstruation in a feeble habit. One case was attacked with varicella soon after admission.

As a general statement few of the above cases were characterized by great severity, and of these one, Case 12, which warrants such a description, was more remarkable for its obstinacy than for the acuteness of the symptoms. Accordingly, the graver disturbances of function are comparatively infrequent. Interference with articulate speech was only observed in six of the cases; dysphagia, to an extent beyond what would naturally follow from spasmodic contortions of the face and hands, only in one case. The rapid and spasmodic protrusion of the tongue, to which much attention has been drawn as a symptom of chorea, was observed in five cases. They formed the bulk of those which have already been mentioned for imperfection of speech. The one remaining case had recovered considerably from this latter symptom before admission, and it is probable that, at an earlier period, spasm of the tongue might also have been substantiated. Distinct spinal tenderness was only found in four cases.

Sulphate of zinc was alone exhibited in eight cases. Of these, five were cured. Three were improved, though not cured. It was in all cases administered in increasing doses, beginning with one or two grains. Six grains was the highest dose given in the cases before us, though in others four times this amount has been exhibited with advantage, and without vomiting. The shortest effective administration was of twenty-four days' duration among the cured cases; the longest of fifty-six days. The average period of continuing the medicine was twenty-nine days for all the cases; two of which were removed before its full influence had been produced, and one was interrupted by an attack of varicella. In four cases the sulphate of zinc was followed by ferruginous preparations. One of these, Case 5, complicated by rheumatism and cardiac disease, must be regarded as an exception. In the other three, Cases 1, 12, and 15, the remedy must be considered to have failed, or only to have succeeded partially; they were all ultimately cured under the administration of iron.

In four cases, the zinc was followed by a course of liq. arsenicalis. In three of these, Cases 3, 7, and 11, this effected a cure; but in the other, Case 12, it was equally ineffectual with the zinc. and recovery took place under the iron treatment. In Case 16, on the other hand, the liq. arsenicalis was exhibited for eleven days in doses of ♏v ter die, without much effect, and recovery took place after the administration of sulphate of zinc for nineteen days in doses of gr. iij ter die. In two cases, 5 and 13, opiates formed part of the treatment. The former of these required their use principally from rheumatic and cardiac complication; in the latter they seem to have had a beneficial effect; inasmuch as recovery took place under their use combined with iron, though the disease had previously resisted both remedies when exhibited singly.

Besides the principal remedy, thirteen cases had the cold or tepid shower-bath during the treatment. Of the three not so treated, one was confined to bed with subacute rheumatism and cardiac symptoms; the second had only recently recovered from an attack of measles; the third had varicella soon after admission. It is not possible to give any separate estimate of the value of this application in bringing about the cure, though it cannot but be ranked very high. It may be omitted as an element of comparison, from its employment in all cases which did not exhibit a distinct counter-indication.

The general statistics are as follows: Of 16 cases treated with sulphate of zinc, 13 went out cured; 3 relieved; but 2 of the latter were in a fair way of recovery, and may probably be set to the credit of the medicament. On the other hand, three of those ultimately cured, owed their improvement partly to ferruginous preparations; and in one case the zinc had no effect whatever. It may, then, be stated generally, that advantage was derived from the zinc in 14 out of 16 cases. The longest stay in the hospital among these cases was 123 days; the shortest 14; the average stay 44.6 days.

Fourteen cases were treated during the same period with preparations of iron; all were cured. The longest stay in hospital was 161 days; the shortest 6 days; average stay 44.2 days.

Twenty cases were treated with liq. potassæ arsenitis: 18 cured; 1 relieved; 1 died. The longest stay in hospital was 55 days; the shortest 6; average stay 26.3 days. Average stay in hospital of the 50 cases submitted to three principal remedies, 37.2 days; average stay of all the 54 cases, 35.4 days.

The results of this analysis are somewhat remarkable, as failing to confirm the usual estimate of the value of sulphate of zinc in this disorder. The iron seems to act more certainly, and the arsenic both more certainly and more rapidly than the zinc. The average duration of treatment both with iron and zinc, 44.2 days and 44.6 days respectively, is very similar, and both are above the general average of the whole number of cases, namely, 35.4 days; whereas, the average stay of the arsenic cases falls as low as 26.3 days. This difference is the more remarkable, as the character of the cases submitted to the arsenical treatment rather exceeded in severity that of the others; and, indeed, the only death recorded belonged to this division.

It remains a question whether the discrepancy between these results and those of some previous well-conducted observations is due to mere accident, or to some real difference in type between cases originating at different times and under dissimilar circumstances.

22. *Iodide of Potassium in Diseases of the Brain in Children.*—Upwards of twenty years since the iodide of potassium was recommended by Roeser and others as a remedy of special power in hydrocephalus. Dr. JOHN COLDSTREAM states (*Ed. Med. Journ.*, Dec., 1859) that his own experience has led him, for a considerable time past, to its employment, almost exclusively, in the treatment of those numerous ailments of children, which we cannot but regard as indicative of a tendency to hydrocephalus. In all cases in which, from the course of symptoms, I have reason to believe that the central organs of the nervous system, or their envelops, are in any degree affected with strumous inflammation (tubercular cerebritis, or meningitis) or its consequences, after moderate purging, and perhaps application of leeches to the head, I am in the habit of prescribing the iodide, in doses of from half a grain to three grains, every three or four hours, generally dissolved in some carminative water, and continuing it in doses, varied according to the symptoms, for many days, or even until convalescence is fully established; and I am quite satisfied that, under this treatment, with the occasional addition of blisters to the shaven scalp, I have seen far more prompt and decided effect produced upon the disease than I used to see under the old treatment.

When opportunities have been afforded of commencing the use of the iodide early, it has appeared in several cases to arrest the progress of the disease *rapidly*, so that the formidable effects of effusion, indicated by squinting and convulsions, have not supervened. In less favourable circumstances, in cases where considerable prostration had succeeded to great febrile action, and in which starting and squinting had become prominent symptoms, I have seen, in not a few instances, the free use of iodide of potassium followed by amendment and complete recovery. In such cases, and in others still further advanced, I have generally given larger doses, even to the extent of four grains, several times a day, to children of from four to eight years of age.

The medicine is very seldom refused by the patient, and I cannot say that I have ever seen it either increase the nausea that so frequently exists in the earlier stages of the disease, or produce any other untoward effect; especially have I never seen it induce salivation, which the drug sometimes seems to cause when given for other ailments.

It seems generally to act upon the kidneys; yet I cannot say that the amount of relief to the head-symptoms bears any very obvious relation to the quantity of urine excreted.[1]

Although I have no doubt that the iodide is more especially useful in cases where there exists more or less of the scrofulous diathesis, I have often used it with satisfaction in patients apparently free from all such taint; even in cases where the ailment seemed to have followed injury from external violence, as so often happens in young children. I am not prepared, however, to assert that the iodide is more useful than calomel in *all* cases of inflammation of the brain and its appendages. When we have to treat robust and full-blooded children, in whom there is good reason to believe that the threatened disease of the nervous system stands more or less directly connected with the preceding disorder of the digestive organs, I have no doubt of the superior efficacy of the mercurial treatment, combined with antimonials and salines; but when, after having duly administered these, symptoms of cerebral disorder continue, I would have recourse to the use of the iodide.

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[1] In a paper, "On the Diuretic Action of Iodide of Potassium" (*Arch. of Med.*, No. 3, London, 1858), Dr. Handfield Jones remarks, that "there are certainly remedies which exert very positive curative influence, admitting of no doubt or question, yet which afford no clue in their general mode of action to explain their special effects. Such, it appears to me, is iodide of potassium." Dr. Jones' observations lead him to conclude that, under the use of iodide of potassium, the quantities of water, of phosphoric and sulphuric acids, and of chlorine in the urine, are very much increased; but the knowledge of this effect of the administration does not enable us satisfactorily to explain its *modus operandi*, either in the cure of secondary syphilis or in that of tubercular meningitis.

In cases of convulsions from teething, which, amongst ill-fed children, living in badly-aired localities, are not unfrequently followed by hydrocephalus, I have used the medicine with much satisfaction.

I have occasionally employed the proto-ioduret of mercury, as advised by Evanson and Maunsell, but not with more obvious benefit than I have been accustomed to see resulting from the use of the iodide of potassium. During convalescence, I generally prescribe the iodide of iron; sometimes a vegetable tonic, combined with the iodide of potassium.

In several cases of recovery from severe attacks of meningitis, it has occurred to me to find the mental powers of the little patients considerably impaired. This result has occasionally been protracted for many years, and seems likely to prove permanent; but, generally, it has gradually become less apparent, and ultimately passed off entirely.

In thus endeavouring to recall attention to what I believe to be a truly valuable agent in the treatment of a class of formidable diseases, I would not overlook the fact, that all past experience tends to assure us that a great majority of cases of disease of the brain in early life prove fatal under all kinds of treatment. In advanced stages of the tubercular forms of these diseases, we may not yet venture to hope for any great advantage in the use of the iodide of potassium. But I am disposed to agree with Drs. Copland,[1] Willshire, and West, in believing that they may be cut short, if subjected to treatment in an early stage, more frequently than is generally imagined. My own experience leads me to regard the iodide as more likely than any other drug to promote this desired end; and my confidence in it, as *the* remedy best adapted to all stages of tubercular diseases of the head, is so strong, that whatever else might be done, or left undone, I would persevere in administering it, even in circumstances the most desperate. In almost all diseases of children, it appears to me right to continue treatment, even to the last. I am very fully satisfied that the use of the iodide never produces any bad effects, however frequently it may fail to do good.

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23. *Chlorate of Potass in Mercurial Stomatitis, and in other Diseases of the Mouth.* By M. J. V. Laborde.—We give the conclusions arrived at in this interesting and important memoir, which obtained the Corvisart prize for 1857.

The chlorate of potass exercises a *distinctly curative* action. In no case tested was this action found deficient.

It possesses, besides, a preservative or prophylactic action, which permits of the administration, during one or two months, of the protiodide of mercury in doses of from fifteen to twenty centigrammes a day without the least injury to the cavity of the mouth; and the proof of such immunity being due to the chlorate of potass, is found in the fact of mercurial stomatitis being at once developed upon leaving off its use.

The time required for treatment of confirmed stomatitis varies with the intensity of the case. In ordinary instances, it never exceeds four days; in some extraordinarily severe cases, eleven days have been required. In almost every case, the first indications of amendment have shown themselves on the second or third day; and, according to what has been observed, the order in which these manifest themselves is: 1. In diminution and entire relief from pain; 2, in diminution of the salivation, and of sub-maxillary or parotidean swelling, when this is present; and 3, in the almost simultaneous disappearance of swelling of the gums, and a return to their natural colour with the disappearance of ulceration where that has not existed previously to the stomatitis, in which case, of course, the chlorate of potass is ineffectual.

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[1] "If recognized early, a large proportion of cases will recover; even in the most advanced periods the patient should not be despaired of. I have repeatedly seen recoveries take place, although strabismus, paralysis, convulsions, blindness, unconscious evacuations, and other unfavourable circumstances, had existed some time." (Copland, *Dict. of Pract. Med.*, i. p. 668.) "The prejudice which attributes the character of incurability to tubercular meningitis only serves the purpose of shackling the progress of medical art." (Hahn, *De la Meningite Tuberculeuse.*)

The increase of the dose does not seem to add to the rapidity of cure, except in very bad cases. In those of medium severity, the dose of three or four grammes is sufficient; and its administration in the form of a julep is preferable to all other modes.

When employed as a gargle, it seems very effectual in cases where the symptoms are exclusively local, such as in mere swelling of the tissue of the gums, their discoloration, ulceration, etc.

It action appears to be entirely localized to the mouth, as is evinced by its being found in the saliva, as well as its effects being exhibited in the mouth when administered internally; and it appears to act as a sort of specific against the effect of mercurial inflammation in this quarter. At the same time it does not interfere with the therapeutic action of this remedy.

Of nine cases of chronic gingivitis, eight of which were accompanied with alveolar suppuration, six cures were effected under its use; two cases were unsuccessfully treated in the same manner; and the one case, without suppuration, was cured only after a prolonged course of treatment.

In only one of these successfully treated cases of gingivitis was the remedy given internally. The cure was complete in twenty days, and the first symptoms of amelioration were manifested about the seventh day. In five other cases, in which the remedy was given internally, no effect was produced by it; but on being used as a gargle, its good effects were speedily apparent—four or five grammes at a time, used in this way, leading to recoveries in from three to eleven days.

The good effects of such treatment almost always begin to manifest themselves in these cases about the second day, and consist at first in a well-marked improvement of colour in the gums, the diminution or cessation of purulent discharges, and the relief of pain. Even in the most obstinate cases, the swelling, discoloration, and pain soon subside—the suppuration alone being difficult to deal with. And in every case the dental tissues themselves rapidly recover their normal whiteness, however much this may have been altered.

In conclusion, it may be remarked that the chlorate of soda very closely approximates in its qualities the chlorate of potass; its solubility is greater, and its taste less disagreeable. Both are, therefore, applicable and efficient remedies in acute ulcerous stomatitis.—*Edinb. Med. Journ.*, Aug., 1859, from *Gazette Médicale*, May, 1859.

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24. *Paralysis Agitans Removed by the Continuous Galvanic Current.*—Dr. J. R. REYNOLDS relates (*Lancet*, Dec. 3, 1859) the following case of this:—

W. F., male, aged 57; married at the age of twenty, and the father of twelve children; height, 5 ft. 10½ in.; weight, under 11 st. No anatomical deformity; no hereditary predisposition to disease; has had good health; has lived well and temperately. His occupation is that of a carpenter; he has resided in a healthy locality, and has never, until the commencement of his present illness, suffered from anything of a similar kind.

For the last five years he has had anxiety with regard to his children, and distress at parting from them, but he cannot definitely refer his malady to this cause. During the last two years he has noticed occasional tremor of the right arm and leg, the latter being affected less frequently and less severely than the former. The tremor has occurred if he (1) has been "put out of anything;" (2) has attempted to lift anything very heavy; (3) has "taken cold;" (4) has lifted liquid in a cup to the mouth; or (5) has fully extended the arm and forearm, and pressed anything firmly with the palm of the hand. But under all these circumstances the tremor has ceased when the "exciting cause" has been removed, and it has never been so severe as to prevent him from following his occupation, which is one requiring much exertion and accurate direction of movements.

For the last six or eight months he has suffered occasional vertigo—*i. e.* a "feeling as if he should fall, or pitch on his head; and as if the head were tied up in tight bandages." At the same time there has been darting pain through the head.

On September 20th he was at work as usual—was alternately stooping down and lifting over his head—when he suddenly felt vertigo, aching in knee-joints, and general disturbance; and at the same time violent shaking occurred in the right upper extremity. The agitation of the right arm continued throughout the day, but stopped at night. It returned on the following morning, as soon as he moved.

On October 5th he was first seen by myself, and on this day (the fifteenth from its commencement) the agitation was extreme. Nevertheless, it had always ceased during the night; and, on two occasions, for about an hour, and without assignable cause, during the day. He thinks it is arrested at night by pressing the anterior surface of the forearm against the crest of the ilium. With the exceptions above mentioned, the movements of the arm have been much the same as now seen; being occasionally aggravated, but not much, by emotional disturbances, or by the attempt at voluntary movement of the extremity.

The whole of the right upper limb is involved—*i. e.* the hand moves on the forearm, the forearm on the arm, the arm on the shoulder; but the most constant and most extensive movement is that at the elbow-joint; the least constant and least extensive is that at the shoulder. Almost every direction of movement possible in the upper extremity is performed; from 22 to 24 double movements occur in five seconds, and the range of movement at the hand, when, for example, the jerking is principally that of flexion and extension of the forearm, varies from nine to ten inches. The movement, therefore, amounts to about eight feet per second.

To the patient himself the right arm feels hotter than the left, and a difference of temperature is very obvious to the hand of the observer. Temperature over left biceps, 87° Fahr.; over right, 91°.

The involuntary movement of the arm can be arrested by his lying on the sofa, and pressing the forearm against the ilium; but any attempt to move the limb voluntarily at once reproduces the shaking, although he remains in the recumbent posture. The movement is, moreover, instantly arrested by my firmly grasping either the forearm in any part of its upper two-thirds, or the arm in its lower third. This is not a mere mechanical arrest of the movements, for it cannot be effected by holding the wrist; and the jerking recommences if, while the extremity is grasped in the manner described, the patient makes any attempt at a voluntary movement. The pressure is not painful, nor is it so directed as to arrest the circulation.

The mental condition of the patient, and his general health, appear unaffected.

Sensibility is unchanged in the right upper extremity; there is no deviation of the tongue, nor distortion of the features. He can walk well, and without dragging either leg; there is only occasionally slight tremor of the right leg.

A continuous galvanic current (direct) was applied to the arm and forearm, the movements of the latter being at the time arrested by pressure. At the end of five minutes he could execute voluntary movements without the least tremor, and emotional excitement failed to reproduce the jerking. The temperature of the two arms, examined after the current had been passing for half an hour, was equal. The involuntary movements did not return until three hours after the current was discontinued; they then reappeared, and continued throughout the evening; stopped at night, but returned on the following morning.

October 6. The current was applied while the arm was in violent movement, but in two minutes it became perfectly still. Application continued for an hour.

7th. Last evening there was no jerking nor tremor for five hours after the current was discontinued; then it commenced, but stopped spontaneously in about half an hour, and during the remainder of the evening there was nothing more than very trifling tremor. The jerking has returned this morning, but is much less than on the first day of observation. There are but twenty alternations in fifteen seconds, and the range of movement is from three to four inches. The movement, therefore, is only .86 foot per second—less than one-eighth of what it was three days ago.

The current was applied on the 7th, on the 8th, and 10th, and after the 10th—*i. e.* after five applications—the spontaneous jactitation completely ceased. When any weight is held in the hand, and it is lifted towards the mouth, there is tremor; but this is slight, is not more than has occurred for the last two years, and it immediately ceases when the effort is discontinued. The arm and hand are weak; every movement can be executed by them voluntarily, but such movements are feeble.

28th. Has written me a letter in a good and legible hand.

The current was applied about every other day, for an hour, until Nov. 10th, and during this time there was steady increase in the power of the limb, and the jactitation did not return. No medicine of any kind was given.

November 12. Quinine and iron were ordered.

15th. W. F. is in perfect general health; there is no jactitation, and only the slight tremor already described when the hand, with something in it, is raised towards the mouth.

The current employed in this case was derived from a Pulvermacher's chain battery of 120 links.

25. *Preparations of Larch Bark in Pulmonary Hemorrhage.*—In our number for July, 1858 (p. 201), we noticed favourable results obtained by Drs. Moore, Kennedy, Carmichael, &c., from the use of the larch bark. Dr. OWEN DALY states (*Med. Times and Gazette*, Nov. 12, 1859) that he has used with equal success this article. He prescribed it first for an out-patient at the Hull General Infirmary, suffering from pulmonary hemorrhage, for whom he had, without the slightest benefit, prescribed all the usual styptics: he resolved to prescribe the tincture of bark. The patient was a female, aged 32, a widow in an advanced stage of consumption. She complained of great difficulty in breathing, of oppression at her chest, and of a constant cough, attended with expectoration of blood. The tincture of larch was ordered in twenty-drop doses every third hour in a little water; the relief was immediate; at the end of a week the hæmoptysis was entirely arrested; and her other symptoms were so much mitigated that she soon ceased to attend at the infirmary.

The styptic properties of the larch bark had, in this case, so far exceeded my expectations that I thought it deserving of a more extended trial, and up to the present time, I have prescribed it in fifteen cases of pulmonary hemorrhage. The cases have not been selected—some have been cases of active and severe hæmoptysis, others of a passive and more chronic character. I have also employed it in one very severe case of epistaxis, and in a case of chronic cystitis, and with the exception of this latter case, in every instance with the most satisfactory results.

26. *Elements of Prognosis in Phthisis.*—Dr. POLLOCK read a paper on this subject before the Harveian Society (May 19, 1859), which he illustrated by the exhibition of several photographic portraits of patients in whom the disease had been arrested.

The following is an abstract of the paper:—

Dr. Pollock began by observing that the subject of phthisis had fallen into disrepute with medical men, who were accustomed to bestow the largest amount of attention only on what is new and striking. The prevalent idea that the disease is incurable, and that its progress is only a continuous declension towards the fatal result, also retarded new researches—the profession conceiving that it was to be palliated, but never eradicated. This condition of the professional mind was most to be deprecated, as from it would spring no progress, and under its influences even an impartial examination of facts became impossible.

It were inflicting a mental blindness on ourselves to allow this state of things to continue without a protest occasionally from those who have large opportunities of seeing this disease. For some years the author had enjoyed these opportunities at the Consumption Hospital; and he proposed, without reference to theories, to offer a few rules for guidance in forming an opinion on the probabilities regarding the future course of any case of phthisis. The value of correct prognosis was very great, involving the personal interests of the patient and his friends, and the character of the physician. The applause and the highest pecuniary rewards of the public also attend on our proficiency in solving these questions; and the author conceived that he should not exaggerate their importance if he stated that more fortunes had been made by scientific accuracy in prognosis, and more credit lost by mistakes in the same, than by all other incidents of professional life put together. The recent practice of insurance offices to accept diseased lives at an increased premium, also added to the importance of an accurate knowledge of the subject. To the attainment of this careful observation and precise knowledge, must be added individual tact. In speaking of consumption, he must be understood to mean a deposit of tubercle indicated by the known physical signs. The first stage meant a simple deposit; the second, its softening; the third, an excavation. Medical language and that of the public greatly confuse one another: the latter desiring to indicate the degree of danger alone. Patients die in all three stages: a fatal result often occurring with extensive deposit only, which had never softened—the sick person being thus in the first stage of tubercle, but in the last of the disease. Let it at once be stated that the degree of disease in the lung and the condition of the patient cannot be expressed by the same formula. Physical signs can never be the measure of the danger, any more than symptoms alone: both must be studied together. It was first necessary to ascertain the average duration of the disease—all stages and varieties being put together. Here we found great difference of opinions, of which the following is an abstract: Portal says it may last from 1 to 40 years; Louis and Bayle in 314 cases found the mean to be 23 months—of these, more than half (162) terminated in 9 months, and the greatest proportion between the third and ninth month; the average duration was 18 months. Andral, at La Charité, found the average duration 2 years; Sir James Clark, in the upper classes "enjoying advantages," 3 years; Dr. Williams, assuming the average duration to be two years, considers (in the last edition of his work) that it has been doubled, or raised to four years, by the introduction of cod-liver oil as a remedy. Three years would be the medium of these opinions. The author inclined to place the duration at a much higher figure, and was satisfied that if cases were earlier recognized, they would be found to last much longer than now supposed. The method of invasion of the disease, and its progress, were next dwelt on. It was evident from the study of some thousand cases which have been under the author's care, that phthisis proceeds by a succession of attacks, and he doubts if even galloping consumption is ever present without a previous, but perhaps unnoticed attack—an opinion which has been expressed by Louis. The symptoms and physical signs of such an attack of tubercle were then described, the patient presenting with slight dulness of percussion, prolonged expiratory murmurs, roughness of respiration, and slight increase of vocal resonance—the symptoms being fever, more or less severe, of a remittent form, cough, and slight evacuation, with or without an hæmoptysis. From this there is partial recovery, but the patient ever after remains below his normal standard of health. Dr. Pollock has seen perfect recovery occur, though rarely, the physical signs being occasionally quite removed. Now, it is obvious that if the subsidence of the attack were overlooked in prognosis, we might deliver a false opinion as to the danger of our patient. A second invasion of disease invariably occurs at a shorter or longer interval. The circumstances which might be considered favourable as regards duration (or the disease becoming chronic) were then dwelt on. These are the softening being limited in extent; the fresh deposit occurring in the same lung lower down; and a clear respiratory sound persisting at the base. The limitation of disease to one lung, whatever be its extent or stage, is more favourable for prolongation than if the affection be double, and the stage earlier. Two varieties of very chronic phthisis were then described. One, a limited excavation, of well-defined characters, in one apex, the physical signs showing consolidation of the lung tissue below this, and the base being quite free from deposit; the other consisting in a cessation of all activity on the stage of softening, and a coincident improvement in symptoms. The physical signs evidence a diffused deposit, shown by a crepitation of a dry character, with here and there a bubble, intervals existing in which the respiratory sound is bronchial and dry, and nothing to indicate a cavity in any part. The expectoration is moderate, the cough confined to certain hours of the day, the health tolerable, but on a low par, but there is considerable dyspnœa on exertion. Dr. Pollock has known such cases last as long as fifteen or twenty years in persons who outlived middle age; and some interesting photographs were handed round, of young girls who had been for some years in this condition, who appeared in tolerable flesh, and were in good general health, the menstrual health becoming established, with improvement of all the symptoms. It would thus appear that there are two kinds of tubercle, one prone to rapid softening, the other presenting inert features. Dr. Pollock also cited cases to prove that there occasionally exist cases of strumous deposit in the lungs in young persons, analogous in all respects to that in the cervical glands, and which become slowly absorbed in the same manner. The prognosis in children must therefore be most guarded. The importance of examining *the whole chest* was then dwelt on in forming an opinion as to the probable duration of a case. The localization of the deposit is worth observing. Softening most frequently begins at the posterior part of the apex, and its signs, when not discoverable under the clavicle, may often be found above the spine of the scapula. In tubercle which assumes a chronic form of diffused deposit, it is not uncommon to find the following order: First, one apex; next, the opposite apex; third, the base of the side last attacked. The most chronic is, however, often diagonal, as right apex left base, left apex right base successively. A curious result of some thousand observations may be thus stated: When the observed and customary order of physical signs is reversed, or in any important respect anomalous, the chances of prolonged life are greater. For example, when the base is first attacked and the apex secondarily, the case will be a long one. One anomaly, again, generally implies several, as when softening began at the base, there was often absence of hæmoptysis or of hereditary taint, etc. In a word, the more each case approaches to the ordinary type of the disease, the more rapidly fatal is it sure to be. The conditions which are either antagonistic to tubercle, or which are rarely found in combination with it, were then noticed, and the rule deduced that where any of these are present the case tends to great prolongation. Tubercle seems to monopolize the system. Skin disease (excepting syphilis and the milder rashes, as acne simplex, urticaria, and herpes), external suppurating scrofulous abscess, cancer, gout, tumours, aneurism, and eminently emphysema of the lung are among these. Acute rheumatism after a deposit of tubercle is rare, but not unfrequently precedes it. Of all these combinations that with emphysema tends to the greatest longevity. Persons with dark hair and eyes, although prone to phthisis, generally exhibit it in the chronic form. A freckled state of skin is rarely seen in the consumptive, and the influence of solar light as a counteractive agent was hinted at. Simple anæmia is rarely found in the first stages of the disease; in the later it occurs as a symptom of blood impoverishment. Of tubercular symptoms it may be remarked, that an early profuse hæmoptysis is unfavourable. A single, late, profuse hæmoptysis is often accompanied by relief to the symptoms, and followed by a pause in the progress of the disease. Dry pleurisy (indicated by *frottement*) is theoretically an almost necessary occurrence to insure insulation of diseased parts, and is not unfavourable to prolongation of all favourable symptoms. A quiet pulse and the absence of fever are the most important. Hectic often occurs early before physical signs are present. Its recurrence in advanced cases is invariably associated with either an advance in the stage of existing disease or with a fresh deposit. The wasting of the tissues in consumption has its meaning in keeping the system at a balance with the respiratory power, and a uniform spare habit of body is the most favourable for chronicity. With this is often associated a most valuable condition, which may be called nervous vitality, conferring on the system great powers of endurance.

Dr. Pollock next exhibited a table of the particulars of about 190 cases of phthisis under his care which had already lasted upwards of four years, each case being noted and examined by himself:—

Cases over Four Years.

Males	111
Females	82
Under 20	25
Under 30	71
Under 40	60
Over 40	36
Fist stage	60
Second stage	56
Third stage	71
One lung affected	84
Both lungs affected	97
Hæmoptysis	124
None	65
Have taken cod-liver oil	144
Have not taken cod-liver oil	44
Diarrhœa	39
No diarrhœa	151
Larynx affected	21
Larynx not affected	170
Hereditary predisposition	69
No hereditary predisposition	113
Have taken cod-liver oil three months	82
Have taken cod-liver oil six months	37
Have taken cod-liver oil for years	32
Degrees of waste:—	
First (slight)	97
Second (decidedly thin)	80
Third (extreme)	12
Hectic, marked by sweatings:—	
Now	88
Formerly	30
Not	38

An analysis of the above table is in favour of males.

Advanced age shows increased toleration of phthisis. An individual is not only less likely to contract consumption after thirty-five; but if he has it the disease inclines to the chronic form. The remarkable number of seventy-one are found with cavities, and the emaciation was not in proportion to the stage, for only twelve were in the extreme of wasting. One half had never spat blood, the ordinary proportion of all cases together being about sixty-three per cent. This illustrates the rule of anomalous occurrences referred to above. The absence of hereditary taint is very remarkable. The secondary affections, diarrhœa and disease of larynx, were exceedingly rare. The pressure of hectic was also rare. Finally, the favourable conditions in phthisis may be thus summed up:—

From Physical Signs.—1. Limited quiescent deposit in one lung.

2. Limited well-defined cavity in one lung.

3. The sounds denoting softening becoming drier in a one-sided deposit.

4. The concurrence of emphysema of the lower parts of the lungs with tubercle in the upper.

5. Any unusual localization of physical signs.

From Symptoms.—1. The absence or rarity of fever.

2. The concurrence of skin diseases, external struma, gout, tumours, aneurism, fistula in ano.

3. The lymphatic temperament.

4. A spare habit of body without much variation in the weight.—*Med. Times and Gaz.*, Sept. 17, 1859.

SURGICAL PATHOLOGY AND THERAPEUTICS, AND OPERATIVE SURGERY.

27. *Three Cases of Tetanus, in which Woorara was used in the Treatment.*—A paper on this subject was read before the Royal Medical and Chirurgical Society (Nov. 22, 1859), by T. SPENCER WELLS, Lecturer on Surgery at the Grosvenor-place School.

The author commenced by stating, that of upwards of 300 cases of ovariotomy recorded, he had only found one in which tetanic symptoms were observed; and referred to the singular fact that tetanus appeared in two out of four cases in which he had performed this operation last month, and to the equally remarkable circumstance that, although he had not seen a case of tetanus for upwards of ten years, a third case had occurred in his own practice within a month, and this after a very trifling operation, proving that the nature of the operation, or the mode of its performance, had little to do with the origin of the disease. The author alluded to recent cases of tetanus treated on the Continent by Vella, Manec, and Chassaignac; and to the experiments of Bernard with the alkaloid *curarina*, the active principle of the poison. He showed that the experiments of Sir B. Brodie in 1811, the application of the results of these experiments by Professor Sewell, at the Veterinary College, and subsequent experiments of Mr. Morgan, and of Dr. Harley, had anticipated all that had been done recently on the Continent, with the exception of making the actual trial on the human subject. The cases now brought forward were the first similar trials made in this country. The author then detailed the particulars of a case of chronic, but severe trismus, going on to opisthotonos, appearing a fortnight after ovariotomy in a patient 41 years of age. The exciting cause appeared to have been a draught of cold air. The great point of interest in the treatment was, that woorara was used hypodermically and epidermically, six grains of the extract having been used in six days. The patient recovered. In a second case, acute tetanus appeared seven days after ovariotomy in a lady, 38 years of age, and proved fatal in three days. The treatment was commenced by assafœtida injections, and woorara was afterwards used, the softened extract having been inoculated in both arms. In the third case, tetanus appeared four days after a simplified perineal operation for the relief of prolapsus uteri in a patient, 51 years of age. It progressed slowly; was treated first by opium and ether, afterwards by woorara, and latterly by chloroform, the influence of which was kept up at intervals for forty-eight hours. The patient died on the evening the paper was read. The author, after expressing regret for the little positive information he had been able to lay before the Society as to the real value of woorara in the treatment of tetanus, thought that he had seen enough to establish the following propositions: 1. That our knowledge of the physiological action of woorara; of its antagonistic effects to the artificial tetanus of strychnine; of the results of its use in idiopathic tetanus of the horse and ass; and the facts that two cases of chronic tetanus in man, on the Continent, and one in this country, have recovered during its application, should encourage further experiments. 2. That although three cases of acute traumatic tetanus in man on the Continent, and two in this country have died, notwithstanding the use of woorara, this should not discourage us from further trials, when we consider the very fatal nature of this form of tetanus, and the fact that in only one of these cases was the woorara applied in a large quantity. 3. That looking to the probable difference in strength of the specimens of extract brought to this country, and to the well-founded belief that they are not all prepared from the same species of vegetable, it would be well, in future trials, to use a solution of the active principle of woorara—the alkaloid *curarina*. 4. That it is desirable to ascertain as far as possible, by experiments on the lower animals, what dose of this alkaloid might be inoculated with safety in man; and whether the artificial tetanus of strychnine establishes a tolerance of curarina. This would afford some test as to the safety of using much larger doses in man when suffering from tetanus than when in a state of health. 5.

That veterinary surgeons should be requested to aid us in our attempts to determine the value of woorara when treating tetanus in the lower animals, by carrying on the dose of the poison until its full effects were shown by suspended animation, and then restoring the animal by artificial respiration. In conclusion, he suggested that more accurate observation is much needed of what may be called the *Natural History of Tetanus.* "It has been demonstrated," he said, "that direct injury to the nerves by pressure, contusion, puncture, or laceration, will induce tetanus. In many cases of tetanus important injuries to nerves have been discovered: such as a knot of whipthong embedded in the ulnar nerve, the knot of a ligature in the sciatic nerve, a splinter of wood in the radial nerve. In other cases, the nerves near a wound have been found reddened and tumefied, and evidences of inflammatory change have extended along nerves from the seat of injury to the spinal cord. But in many cases no change either in the peripheral nerves, or in the spinal cord or brain has been discovered. It is most interesting and important, therefore, to discover whether we may not have two very different conditions confounded under the single term, 'tetanus;' whether in some cases we have spasms dependent upon irritation of a peripheral nerve and increased reflex excitability; and in other cases a blood disease caused by the absorption of a morbid animal poison, developed by perverted secretion of the wounded surface; which poison is analogous in its effects, and possibly in its composition, to urea, strychnine, and the poison of hydrophobia. Of the three cases I have brought before the Society, the two former strike me as instances of tetanus from morbid poison, and the third as dependent on injury to the branches of the perineal nerves. Much light may be thrown on this interesting question, by noting the effects produced on animals by inoculation of the secretions of the wound; or of the blood, or juice of muscle; or of the urine and other excretions of tetanic patients; and I trust that some of the gentlemen now present, may enrich medical science by some such observations as I have ventured to suggest."

Mr. Curling said that no one who had witnessed the operation for ovariotomy, could be surprised at its occasionally giving rise to tetanus, but he believed that the circumstance of two cases in succession resulting after that operation was quite accidental. A similar occurrence took place at St. Mark's Hospital where there were very many operations for hæmorrhoids, tetanus never having followed them except in two cases which occurred in succession. He agreed with Mr. Wells in thinking that no satisfactory conclusion could be drawn from the two cases he had recorded, as to the beneficial influence of woorara. He remembered the early experiments to which reference had been made, and he had stated in his work on tetanus, that the poison was deserving of a cautious trial in acute cases of tetanus in the human subject. Several cases had come under his care since that period, but the poison was not at hand for him to employ. One important objection to it was the difficulty of regulating its action. It was no doubt deserving of a further trial, but its application should be restricted to genuine cases of acute well-developed tetanus. He had seen many cases recover, not of an acute, but of a severe chronic form. In those cases chloroform had been very advantageous in warding off spasms for a considerable period. It would be a great advantage if a specimen of woorara could be obtained that might be depended on, and if a safe and efficacious mode of exhibiting it could be discovered.

Dr. Harley said he agreed with the author in believing that the conflicting opinions regarding the action of woorara on the human body, were chiefly due to the fact of the specimens employed being of ununiform strength. He had in his possession at the present time five specimens of the poison prepared by different tribes; and, although the general action of all was identical, yet their strength varied considerably. There was, however, a second, and equally important reason, namely, the mode of administration. Woorara differed from many remedies in not being absorbed equally readily when introduced into the body by various channels. Thus it could not enter through the unabraded skin, and when taken by the mouth its action was extremely doubtful. Dr. Harley had made a pigeon swallow twenty, and a mouse thirty, times more than was sufficient to destroy them if introduced by a wound, and yet both animals remained unaffected. This did not arise, he said, from the poisons being destroyed in the digestive canal, for he had seen Bernard poison a bird with the excrements of a dog, to which a poisonous dose had been given with impunity. As regards the value of woorara when compared to other narcotics, Dr. Harley remarked that he considered that its superiority consisted in its peculiar power of paralyzing the motory, and not the sensory nerves. Nay more, he said that it could be so administered as to destroy entirely the power of voluntary motion, without impairing the consciousness of the animal. (Dr. Harley related one or two experiments in proof of this statement.) In administering woorara to animals labouring under tetanus induced by strychnine, he therefore gave sufficient to paralyze all the muscles, except those of respiration. In this way he was able to allay the tetanic spasm without destroying the intelligence, or arresting the performance of the organic functions. And by continuing the thus moderated action of woorara until the kidneys had time to eliminate the strychnine from the system, he had been able to save the life of the animal. The theory of its action in tetanus was, Dr. Harley considered, much the same. That is to say, you try to keep the spasms from killing the patient by their violence, until the morbid state calling them into play has exhausted itself. The chances of curing by woorara a patient labouring under strychnine poisoning, are naturally much greater than those of curing a case of traumatic tetanus, where the morbific matter may go on increasing until its effects are more than sufficient to counteract the influence of woorara.

Dr. SIBSON said that in 1838 he wrote to Mr. Waterton on the subject of woorara. Mr. Waterton, after hearing of Mr. Sewell's experiments, went over to New Guinea to obtain a store of the poison, with a view to its use in cases of tetanus or hydrophobia. He afterwards experimented on an ass to show that an animal might be resuscitated, after what would otherwise be a fatal dose, by artificial respiration. He (Dr. Sibson) performed the experiments to try the effect of artificial respiration. For more than an hour the animal lay apparently dead, with no sign of life but the beating of the heart. At length it was made to breathe, and in an hour afterwards was walked round the room by Mr. Waterton. Some of the poison was given to him (Dr. Sibson), and he experimented with it upon a horse, the subject of tetanus. A dose proportionate to that given to the ass did not produce the desired effect; and in increasing it, the animal was destroyed. In another case the animal breathed at the end of three or four hours, but it died before the apparatus could be applied a second time. The animal was free from tetanus during the whole period of the experiment. He had performed experiments on lower animals similar to those described by Dr. Harley. In only one instance was any considerable result produced after giving the poison by the mouth, but in that case he considered that some abrasion had accidentally taken place. In order to overcome tetanus it was necessary to give an adequate dose, and he feared that an adequate dose would be such as absolutely to call for artificial respiration. He had been for years prepared to encounter the responsibility of employing artificial respiration in cases of hydrophobia; and in one instance, in which he was telegraphed for to go to Wakefield, he took his apparatus with him; but, within thirty miles of the town he heard, greatly to his relief, that the patient was dead. He thought the woorara poison offered the best chance of success, from its complete destruction of the disease for at least a number of hours, and he hoped that in some case of hydrophobia it would be tried with artificial respiration. He feared that the symptoms of tetanus would be found too severe to be overcome without loss of life.

Mr. SPENCER WELLS said he should be sorry to see the poison administered in such quantities as to suspend animation, until more favourable results had been produced upon animals than those which followed the experiments of Mr. Sewell and Dr. Sibson. It was encouraging to observe that many of the improvements which were supposed to originate abroad should prove to have arisen in this country. A great stir had been made abroad as to the researches of Bernard and Vella respecting the physiological action of woorara and tetanus; yet years ago Sir B. Brodie, Mr. Sewell, and Mr. Morgan were doing all that the French physiologists and surgeons were now taking credit for. So with regard to the distribution of the sensitive and motor branches of the mixed nerves, which Dr.

Harley gave Bernard the credit of discovering by the aid of woorara—the same thing was pointed out twenty years ago by Mr. Hilton, at Guy's Hospital.

Dr. Radcliffe said that in several cases tetanic spasms had given way to conium, which might be administered by the stomach, and was of very certain action. He suggested that this would be a better agent to employ than woorara. —*Med. Times and Gaz.*, Dec. 3, 1859.

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28. *Effusion into the Knee-Joint Treated by Iodine Injections.*—W. Colles, Esq., Surgeon to Steevens' Hospital, relates (*Dublin Hospital Gaz.*, Dec. 1, 1859) the following example of this:—

"Wm. Frazer, æt. 30, a turnkey, was admitted into Steevens' Hospital, November, 1858. He states that in the year 1850 he received a hurt in the left knee-joint by falling on it whilst making a great effort to secure a prisoner. The joint swelled to a great size.

"He was treated by rest, blisters, and some internal remedies, by which means the swelling was removed in about a week.

"The joint subsequently became swollen several times from very slight causes, but always yielded to treatment till about nine months ago, when he again hurt it severely; it became suddenly swollen and very painful. The pain was much aggravated at night, and accompanied with startings of the limb. The pain ceased in a few days, but the swelling has continued ever since. He could walk with the aid of a stick and perform his duty, but now he was obliged to resign his situation, as the limb was useless from the great swelling and relaxation of the ligaments.

"He was subjected to various kinds of treatment in different institutions without benefit; and on admission into Steevens' Hospital the leg and thigh of the left side were much smaller than the right, but the knee-joint was considerably larger, on account of a large swelling on the inner side of the joint, extending from the tubercle of the tibia to an inch above the patella. The integuments were of a natural colour, and the tumours yielded a uniform soft fluctuating feel, as of fluid beneath.

"There was a small tumour, about the size of half an orange, on the outer side of the joint, also containing fluid, and evidently communicating with that on the inner side.

"The motions of the joint are limited in extent. Different modes of treatment were used, with the object of causing the absorption of the fluid. Mercury was administered locally, blisters, hydriodate of potash, bark, stimulating liniments, strapping, pressure, etc. etc.; these were all successively and assiduously tried without producing any effect on the tumours.

"January 15.—A small trocar was passed into the tumour, and exit given to a fluid of a creamy consistence and yellow colour; the canula became blocked up by flakes of lymph before more than about half an ounce escaped. I did not like to use any efforts to get more away, and was contented to inject about two drachms of the tincture of iodine, which remained in the joint. This caused some uneasiness, which soon passed off. No bad symptoms follow. After waiting three weeks, and finding no alteration in the symptoms, I repeated the operation, using a larger trocar, and evacuated about six ounces of a dark-coloured, but more homogeneous fluid. I injected about an ounce of the tincture of iodine, and could withdraw but a very small quantity of it again; however, its presence did not produce any bad effect.

"In about three weeks the sac became again filled, as large as before the operation. It was again tapped and injected, and the operation was repeated about four times, at intervals of from three to four weeks. After the last operation there was no more fluid secreted, and the joint presented a more natural form. The patient was now able to get about much better, as he could use support to the limb, which felt stronger and more steady under him.

"He soon after left the hospital, as nothing further could be done, as we hoped time would alone suffice to cause an anchylosis in the joint, when all diseased action had ceased.

"He again presented himself this month, November, 1859, one year nearly having elapsed since the operation. There has been no greater swelling; he is able to go about, not, however, without the aid of a stick, but he feels the limb much stronger, and wears an elastic support to the joint.

"The line of treatment here recorded has been seldom practised in this city, because I consider the cases in which it would be justified are very rare. In general, by perseverance and attention, and more or less frequent changes in the plans of treatment, we at length succeed in causing the absorption of the fluid in such cases as that above recorded; but in the present instance I thought myself justified in resorting to this extreme measure, as the disease had existed for such a long time, was not influenced by any treatment, and the joint had been evidently much altered from the normal structure, and the secreting sac much deformed from ordinary synovial membrane.

"I resorted to the operation not without some fear and anxiety, but I was very soon satisfied as to the propriety of it by the absence of any bad symptoms, and was the more encouraged to repeat the injection till it induced some decided alteration in the disease.

29. *Excision of the Knee-joint.* Dr. EBEN WATSON, in an interesting paper (*Glasgow Medical Journal*, Oct. 1859), states that excision of the knee-joint has been performed eleven times in Glasgow on the living subject. Of these cases only *four* have been successful, and *seven* have been failures. Of these seven patients four died from the effects of the operation; three were submitted to amputation through the thigh, and one of them survived. So that of the eleven patients operated upon, *six* died.

These results may be also expressed as follows:—

Cases of excision, 11	Total recoveries,	5	Cures, with useful limbs,	4
			Cure after secondary amputation,	1
	Total deaths,	6	After excision,	4
			After secondary amputation,	2

or perhaps still more clearly, though somewhat differently, in the following table:—

Number of excisions.	Cases of secondary amputation.	Cures, with useful limbs.	Total recoveries.	Total deaths.
11	3	4	5	6

Mr. Butcher, in his papers on this subject in the *Dublin Journal of Medical Science* (Vols. xix. and xxv., and No. 53), gives, *from many sources*, cases to the number of 83; of these there were 58 cures, and 15 deaths, and 6 successful secondary amputations. One of the 15 deaths was after amputation, and three of the 83 cases disappear from the account, I rather think, because they were too recently operated on to be stated with the others. His account, then, is as follows:—

Number of excisions.	Secondary amputations.	Cures, with useful limbs.	Total recoveries.	Total deaths.
80	7	59	65	15

This is, of course, much more favourable for excision than the former table; but even when the results are combined, the number of deaths is small compared with that of the recoveries. Thus—

Cases.	Total recoveries.	Total deaths.	Secondary amputations.	Cures, with useful limbs.
91	70	21	10	63

These figures show most favourably for the operation of excision, both as to the smallness of the mortality, and as to the satisfactory nature of the result, in no fewer than 63 out of 91 cases; viz., that the patient retained his two limbs, and was not condemned to hop about for life on one.

The mortality after amputation through the thigh *for disease* is, it must be confessed, higher than that just given for excision of the knee-joint. In the Royal Infirmary of Glasgow, between 1842 and 1857 inclusive, there were performed 128 secondary amputations through the thigh; of that number, 65 patients died, and 63 recovered. About one in two died. But I have not separated the cases of amputation for disease from those for accident in this statement. Now the latter class of cases, viz., secondary amputations of the thigh for accidents, almost all die; but they are not distinguished in the operation-table of the hospital; and, therefore, I could not do so without very great labour, The proportion of deaths given above is, for that reason, greater than if the amputations had all been for disease. I would guess the true percentage at 40 or thereabout.

Now there were only 21 deaths in 91 cases of excision of the knee-joint; and that is 23.07 per cent., or nearly one-third less than the proportion of deaths after amputation through the thigh for disease. It ought to be remembered, too, that these 91 cases were operated on and treated in many different ways, and above all that their diseases and constitutions were different. It is quite possible, therefore, that in future, by a better selection of cases, and a more skilful choice of the precise manner of operating, the mortality may be still further diminished. At all events, it will not do for surgeons any longer to ignore this contrast of results; and, however great their prejudice, however plausible their arguments against the operation of excision of the knee-joint, they must bend to stubborn facts and reconsider their opinions.

Dr. Watson states that he has lately operated by a single straight incision drawn right across from the one side to the other of the knee. Its middle corresponds with the middle of the patella, which I cut out, and open the joint. This is a much smaller wound than that occasioned by either of the other two modes of operating; and it is quite sufficient for the purpose required, namely, of fairly exposing the articular ends of the bones.

In cutting the bones, Dr. W. uses Graham's saw, and slants its blade so as to cut the end of the former convex, and thus save its length while he removes its entire surface. Again, he cut the head of the tibia, so as to make a concavity into which the convex end of the femur fits.

Any of the morbid structures which have not previously been removed, should now be cut off; and finally, the knife should be drawn downwards at each extremity of the wound, so as to facilitate the escape of the discharge. The limb in most cases may now be straightened, and a few wire sutures inserted in the front of the incision. No bloodvessels of importance are cut in the performance of this operation, so that ligatures are seldom required, and almost no blood is lost.

One other point of importance belonging to the operation, has occasioned some difference of opinion among surgeons; and that is, whether or not the hamstring tendons should be cut, when from long disease they have become contracted, or whether they should be gradually extended afterwards. Now, our experience at the Royal Infirmary shows, that the latter process gives far too much pain, and interferes too importantly with the granulation of the wound, to be received as the proper practice. In Case VIII., the worst consequences were attributed by the attending surgeons to the adoption of this proceeding. On the other hand, the cutting of these tendons, already exposed at each side of the wound, could not do any harm, but, on the contrary, would make the future management of the limb a matter of comparative ease to both patient and surgeon.

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30. *Scooping of Bone substituted for Resection or Amputation.*—M. Sédillot, of Strasburg, has for the last two years seized every opportunity, in cases of diseased bone, of scooping out the affected parts, and leaving the cortical portions, rather than have recourse to resection or amputation. In April, 1858, he brought this mode of operating before the Academy of Sciences of Paris, and then stated that he was led to adopt the method from observing the remarkable

osteogenic powers of the periosteum pointed out by M. Flourens and M. Ollier. Instead, however, of dissecting the periosteum from the bone, and removing the latter (a proceeding which offers some difficulty), M. Sédillot leaves the whole cortical portion of the bone, as above stated, and removes the carious parts.

On the 31st of October last the author brought before the same Academy an account of the cases operated upon in this manner. Ten patients recovered, and three died. Amongst the former, M. Sédillot mentions the case of a young girl in whom he had scooped out the lower third of the femur and the condyles: she now walks very well. Another case is that of a young man suffering from caries of the lower part of the left tibia; the scooping here included the whole of the articular extremity, and the inside of the malleolus; the patient now works hard, and can walk fifteen or sixteen miles. The fatal cases may not be charged to the operation; one died of epidemic sloughing phagedena six weeks after the scooping, and the others several months after submitting to operative procedures. M. Marmy, of Lyons, and M. Ehrmann, a military surgeon in Algeria, have both sent to the author a successful case of this operation.

If we are not much mistaken, M. Sédillot's operation has much analogy to the gouging in caries so often successfully practised in the hospitals of this metropolis. But a real improvement in the operation of resection of joints is the careful preservation of as much periosteum from the extremity of the articular surfaces some distance up the shafts as has not been destroyed by the progress of disease. This should be borne in mind by those surgeons who frequently perform resection of joints; nor are the practical proofs of the utility of these precautions wanting. M. Verneuil, of Paris, for instance, has placed several cases of resection of the elbow before the Academy of Sciences, and shows that, by dissecting very carefully whatever periosteum is left, he had, by regeneration of bone, in one of his cases, only two inches shortening, after having removed altogether four inches of osseous texture from the humerus, radius, and ulna. In another case, M. Verneuil was able to leave a regular cylinder of periosteum at the lower extremity of the shaft of the humerus; and in this instance, also, the results were extremely satisfactory.—*Lancet*, Dec. 10, 1859.

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31. *Extra-Capsular Fracture of Neck of Femur.*—Prof. ALEX. GORDON, of Queen's College, Belfast, relates (*Dub. Hosp. Gaz.*, Sept. 15, 1859) the following interesting case:—

"William Mitchell, aged 58, but apparently older, a pensioner, admitted into the Belfast General Hospital, February 12, 1859. He states that his habits are temperate, that for some time past he has been subject to a chronic cough and shortness of breathing. On the evening previous to his admission, when passing along a dark lane, he was tripped by a rope, fell against the curb-stone, and broke his thigh. On admission into hospital, the long splint was applied. On visiting him on the following day, there was no deformity, no shortening of the limb, nor complaint of pain in the thigh or hip.

"15*th*. As the difficulty of breathing had increased, obliging him at intervals to assume the sitting posture, he removed the perineal band to be enabled to sit up. To permit him, therefore, to do so with greater facility and comfort, the long splint was taken off, and the limb placed on the double-inclined plane. This did not cause him pain, at least he made no complaint, nor was the fracture apparently disturbed.

"16*th*. His expression is maniacal; he is talking incoherently. During the night he made several attempts to rise out of bed. The upper fragment of femur can be felt distinctly, about three inches below the trochanter major, causing the thigh at this part to be much bowed outwards. Measurement along the convexity does not show any shortening of the limb, but that of the concavity, or inner side of thigh, is shorter by two inches at least. Pulse 88, soft; skin moist; bowels open; tongue slightly furred; respiration 40. The limb was extended, and a pad and splint applied to the outer side of thigh, which was still kept on the double-inclined plane, and a broad piece of linen, with straps attached, was laid along the outer side of opposite thigh; some of the straps were carried behind, and others in front of the thigh, and being tied, prevented the outward displacement.

"20*th*. Is becoming insensible; the forehead is covered with an abundant perspiration; pulse 108.

"He died on the night of the 21st, the ninth day after the accident; and on the following day the femur was removed from the thigh; much blood was effused amongst the various tissues of the limb, even down to the knee. At first sight, the accident seemed to be a fracture of the upper third of the shaft of the femur, running obliquely upwards to the anterior part of the root of its neck; the capsular ligament attached to its end, preventing displacement upwards; but on removing this ligament, and the other soft parts adherent to the bone, it was found to be an extra-capsular fracture of the cervix femoris.

"When the periosteum was on the cervix, the line of fracture on the fore and upper part of the neck was so indistinct as to be incapable of detection, either by the sight or touch, and it was only by moving the fragments that the whole of its course could be traced. Now, however, when the parts have been boiled, we are able to perceive the full extent and true nature of the injury. The more carefully the case is studied, the more interesting it becomes, as affording us an example of extra-capsular fracture, which may have an influence in settling disputed points, by corroborating the views entertained by some, whilst at the same time it modifies, or is opposed to the statements or conjectures of others.

"The fracture may be said to consist of four main fragments, in each of which may be included several minor ones.

"The first consists of the head and neck. The second consists of the trochanter major; the posterior intertrochanteric line; part of the posterior surface of the lesser trochanter; and a triangular portion of the upper end or the shaft, which may be easily determined by a point on its external surface three and a quarter inches below the base of the trochanters; and from the point just indicated by drawing two other lines, one passing upwards and inwards, and ending where the base of the trochanter joins the neck, the other upwards and backwards to the lesser trochanter. We have thus a portion of the anterior external and posterior surfaces of the shaft attached to the trochanter major and posterior intertrochanteric line. The third portion consists of the lesser trochanter, and a small elongated triangular piece, running obliquely downwards and backwards to the linea aspera. The fourth portion consists of the remainder of the shaft.

"Let us now trace the line of fracture. On looking downwards at the centre of the upper border of the trochanter, where the neck of the femur joins it, impaction commences. The fracture from this point runs obliquely downwards and backwards, internal to the digital fossa; after that it corresponds exactly to the junction of the neck with the posterior intertrochanteric line, and on reaching the upper and back part of the root of the lesser trochanter, it bifurcates, the posterior division running along the middle branch of the linea aspera, whilst the other branch runs above the lesser trochanter, separating it from the neck, and having gone forwards so as to be on a vertical plane anterior to the lesser trochanter, it again divides into a descending and ascending branch. The former running in front of the lesser trochanter, and passing obliquely downwards and backwards joins the branch behind it, or that which is in the middle branch of the linea aspera. Thus we have the lesser trochanter, with a triangular piece of bone attached to it, completely isolated. At the place where the fracture passes above the lesser trochanter, separating it from the neck, there were several comminuted pieces of bone. The fracture after that takes a course upwards and outwards along the inner border of the anterior intertrochanteric line as high as the base of the trochanter. There the impaction ceases, the remainder of the fracture along the upper and anterior part of the root of the neck did not suffer the slightest displacement. Anteriorly, where the intertrochanteric line joins the trochanter, the fracture of the upper end of the shaft commences, whence it runs obliquely downwards and backwards, and joins that proceeding from the lesser trochanter, three and a quarter inches below the base of the greater trochanter. Besides these complete separations, we find partial fractures or fissures, which have, as I shall presently attempt to show, an important bearing on the mode by which fracture of the trochanter is produced. In the upper and external surface of the trochanter major there is a letter H-like fissure, the upper limbs of which ascend over the upper border of the trochanter, and join the main fracture opposite to the commencement of the impaction, whilst the lower limbs pass half way down the trochanter. The extent of space within these vertical limbs is nearly one-third of the transverse breadth of the trochanter. There is also another fissure in the upper part of the posterior intertrochanteric ridge, which ends in the posterior and superior angle of the greater trochanter.

"Previously to the patient becoming delirious, I was fully satisfied with the statement made by our intelligent house pupil, Mr. Moore, that there was merely a fracture in the upper third of the femur; there was not the slightest appreciable deformity, nor did the patient make any complaint; and even when, in his delirium, he had disarranged the relation of the fractured surfaces, and even when I found the point of the lower end of the upper fragment displaced outwards three and a quarter inches below the base of the trochanter, the thought of the fracture being extra-capsular never occurred to me.

"As the conclusions at which I have arrived from the study of this specimen of extra-capsular fracture are in several respects not in accordance with those of others, I shall first consider the question of shortening of the limb. Dr. Smith says: 'From the opinion, therefore, of Rodet, that there may be no shortening of the limb in certain cases of fracture external to the capsule, I must altogether dissent . . . for in all such injuries there is impaction, and, if so, there must inevitably be shortening of the limb, even though there be no loss of obliquity in the neck of the femur, no separation or displacement of the fractured trochanter, no laceration of the fibrous structure.' (Smith on *Dislocations and Fractures*, pp. 18, 19.) Now, the question at issue is this: Is Dr. Smith right in maintaining that there is, in every instance of fracture of the neck of the femur, external to the capsule, a primary and immediate shortening, and Rodet wrong in supposing that when the trochanter and the fibrous tissue surrounding it is uninjured there is no shortening? I am fully sensible of the difficulty of giving a positive value to the precise signification of the term shortening. If by the words 'primary and immediate shortening,' Dr. Smith means a shortening that can only be detected by the most accurate measurement—a measurement that will detect shortening to the extent of a line, or a line and a half at the utmost—then I should say that this specimen will corroborate his statements. If, on the other hand, he means to imply a primary and immediate shortening, unequivocally capable of being detected in the living subject, and leaving no doubt on the mind of the surgeon that there is shortening—then I say that this specimen will not warrant such a positive statement. On the fore and upper part of the neck there is not the slightest displacement, and even behind and below at the base of the lesser trochanter, where the impaction is best marked, it is not more than a line and a half at the utmost. Now, is it possible that such a slight degree of impaction could cause a primary and immediate shortening capable of detection in the living? I think not. I am, therefore, bound to adopt the following inference, that this is an undoubted example of extra-capsular fracture, in which there was scarcely any eversion of the limb, and no shortening capable of being detected by the most accurate measurement. But, in addition to this, it presents us with an example of an extra-capsular impacted fracture, in which shortening might be referred to two different conditions of the same fracture. The first is that to which I have already referred, viz.: the impaction of the neck of the femur. The second is the oblique fracture through the shaft, which was produced in the following manner: When the lower part of the neck was driven into the shaft by the shock, it became wedged between the posterior part of the base of the lesser trochanter and the inner surface of the shaft, and instead of detaching the posterior part of the base of the lesser trochanter and inferior part of posterior intertrochanteric line, it caused a very oblique and complete fracture of the shaft itself. Although anteriorly and internally the upper part of the shaft is detached from the base of the neck, almost as high as the anterior and internal part of the base of the greater trochanter, and after that running outwards and downwards for three and a half inches, until it meets with that proceeding downwards from the lesser trochanter, still there was no displacement in the vertical direction, as the attachments of the capsular ligament in front, and the insertion of the gluteus maximus behind prevented it.

"Another interesting question in connection with this fracture is the *modus operandi* of the force causing it. With the first part of Dr. Smith's explanation, I entirely agree, but the latter I cannot adopt. He says (*Ibid.*, p. 17): 'What occurs appears, in fact, to be this—the neck of the femur is, in the first instance, broken by the fall upon the hip, and then driven into the cancellated tissue, between the trochanters, by the weight of the body, and the prolonged action of the shock; but as soon as the neck of the bone is broken, the femur is rotated outwards, and even before the action of the first impulse has ceased. Thus the posterior intertrochanteric ridge being thrown forwards, is forcibly driven against the back of the neck of the femur; two forces, therefore, combine to produce the fracture through the intertrochanteric space, one of which consists in the impaction of the cervix into the shaft, whilst the other is found in the collision which takes place between the broken neck of the bone and the posterior intertrochanteric ridge.' In this, and several other specimens in Queen's College Museum, I do not find that the posterior intertrochanteric ridge lies in contact with the posterior surface of the neck, and, therefore, cannot admit that it is driven forcibly against the back of the neck, and produces the fracture through the trochanter; for if this were the case, would we not find the back of the neck lying against the ridge, and probably a depressed fracture in it? The fracture through the trochanter occurs antecedent to the impaction, and, therefore, antecedent to the inclination forwards of the posterior intertrochanteric ridge; and what seems to me to have occurred, and I think is capable of demonstration in the recent subject, was as follows: the patient, on being tripped, fell upon the posterior and outer surface of the greater trochanter, which was, therefore, thrown inwards and forwards; the impulse, therefore, instead of being received equally on all parts of the base of the neck, fell, in the first instance, on its posterior part at its junction with the greater trochanter and posterior intertrochanteric ridge, which giving way, impaction occurred, and after that the remainder of the fracture. The extent of the comminution and impaction will vary according to the fragility of the bone, and the amount of violence applied. The impaction of the neck will have unquestionably an influence in determining displacement of the trochanteric fragment; but, from the effects of blows on the trochanters, as witnessed on the dead body, the sequence of events seems to be as follows: direct lateral violence produces primary and immediate comminution of the trochanter, fracture of the base of the neck, impaction, additional fractures, and then displacement.

"Violence applied from behind forwards, produces primarily fracture and displacement inwards and forwards of the trochanter, impaction posteriorly, fracture of the base of the neck generally, and then displacement and fracture from the impaction. When the trochanter strikes the ground, it will be for the instant fixed, perhaps at this time, the extremity being in projectile force, acts obliquely, as a lever, in breaking up the base of the neck. I think this specimen points to the impaction acting powerfully at two points, viz.: at the upper part of the neck corresponding to the prominent ridge which bounds superiorly the digital fossa. It is at this part and a little in front of it, that the starting-point of the fracture of the trochanter originates. The second point is, where the neck joins the lesser trochanter. There the compact tissue of the neck in expanding to form the lesser trochanter, is less thick than higher up, and when it gives way and enters the cancellated structure, it drives backwards the base of the posterior trochanter and the intertrochanteric ridge. The impaction thus occurring simultaneously above and below, causes further detachment of the posterior part of the trochanter, even before the broken edge of the intertrochanteric ridge could possibly have come in contact with the posterior surface of the neck. Now, in this instance, the wedge-like action of the base of the neck at these two points, acting as it were differently, and instead of mutually contributing to detach the trochanter, have caused two different fractures. That above is the usual fissure or fracture of the trochanter; that below, instead of acting in a posterior direction on the lesser trochanter and posterior intertrochanteric ridge, has splintered the upper part of the shaft of the femur."

32. *Fracture of the Clavicle between the Coraco-Clavicular Ligaments.*—Prof. GORDON relates the following case of this accident:

"Sarah Willis, aged 16, a mill-worker, admitted into the Belfast General Hospital, May 31, 1859. She says 'that, whilst at her work, she stumbled, and, falling on her elbow, injured her shoulder.' On looking at her as she lay in bed, the nature of the injury was very evident. The right shoulder was directed more forwards than the left, and, relatively to the clavicle, depressed. The trapezius was visibly projected backwards, opposite to and by the outer end of the inner or sternal fragment of the clavicle, fully half an inch of which projected beyond the inner end of the outer or acromial fragment. The fracture was oblique from behind forwards, and about two lines external to the commencement of the posterior convexity. The acromial fragment posteriorly was three-quarters of an inch in length, whilst along its anterior border it measured one inch. The distance between the acromio-clavicular and sterno-clavicular articulations on the left side was four inches, whilst that of the right or injured side was only three inches. The outer fragment rested against the anterior border of the sternal fragment.

"This is the fourth example of fracture of the clavicle between the coraco-clavicular ligaments which I have met with in a period of six months. Two of them were of old standing, and two recent. The former I had an opportunity of dissecting, and the results have been recorded in the Transactions of the Clinico-Pathological Society. Although two of these instances have occurred subsequently to my first communication on this subject, they confirm fully all the observations then made. I shall now, however, give a summary of the conclusions at which I have arrived, and of the facts observed in the two cases in the living, and of the three specimens deposited in the Museum of Queen's College.

"1. That, from the form of the clavicle, fracture in the posterior concavity, or in that part of it to which the coraco-clavicular ligaments are attached, is not a rare accident, having met with four cases within the short period of six months, two in the living, and two in the dead.

"2. When the clavicle is broken between the coraco-clavicular ligaments, there is generally considerable displacement of the outer fragment forwards on the anterior border of the inner portion; and the attachments of these ligaments do not offer any important resistance to this displacement. If we dissect away all the soft parts, leaving the clavicle attached to the scapula by its ligaments alone, then saw through the clavicle, leaving the compact layer on its under surface untouched, and after that break it, it will be found that the coraco-clavicular ligaments do not offer any appreciable resistance to the outer fragment, being applied against the anterior border of the inner one.

"3. We have fracture between the coraco-clavicular ligaments without displacement, and when that occurs it must be referred to some other cause than to the resistance offered by these ligaments.

"4. The extent and nature of the displacement in fracture between the coraco-clavicular ligaments will be found to be very variable. There may be scarcely any displacement, or, as in No. 1 specimen, the outer fragment may unite almost at a right angle with the inner one, the upper surfaces maintaining the same horizontal level; or, as in No. 2, with the acromial fragment somewhat above the sternal one, and the angle formed between the fragments somewhat less than a right angle; or, as in No. 3, and the case just related, where the outer fragment is displaced so much inwards as to leave half an inch or even a little more of the inner fragment projecting beyond the inner end of the outer fragment. No. 3 presents us with an example in which there was a false joint, the fragments being united by strong ligamentous bands, and, in addition, the outer end of the inner fragments was so rotated by the action of the trapezius muscle, that its upper surface looks forwards and upwards, instead of directly upwards.

"5. The outer end of the sternal fragment seems to be displaced backwards and slightly upwards, but this is more apparent than real, from the shoulder falling downwards and inwards.

"6. From the inclination forwards and inwards of the shoulder, the outer end of the sternal fragment comes in contact with the trapezius; hence, when pressure is made on that muscle opposite the fracture, it becomes applied against the end of the sternal fragment, causing a jagging pain, much more acute than when pressure is made over any other part of the fracture. The severity of this pain, however, will depend on the seat of the fracture, its nature, the form of the clavicle, and the tolerance of the patient to pain. Thus the pain on pressure in my first case, that of the carpenter, was most acute, whilst that of the girl Willis was not complained of.

"7. From the form of the clavicle, fracture occurs most frequently at the centre of the posterior concavity, or a little more external, than between the trapezoid ligament and acromio-clavicular articulations. For, when we take into consideration the short space that exists between the extreme external attachments of the trapezoid ligament and the acromion, the greater transverse breadth of the clavicle here than half an inch or an inch more inwards, and the shorter lever, it is quite evident that fracture between the ligaments and acromion must be a very rare accident, and the result of some peculiar and direct force; whereas, in fracture between the coraco-clavicular ligaments we have a longer lever, lessened diameter, and the curve of the clavicle, all conducing or predisposing to fracture here rather than external to these ligaments.

"8. From the attachments of the coraco-clavicular ligaments, from the three specimens exhibited, and the two cases related, I am of opinion that several of the cases of fracture of the clavicle described by Dr. R. W. Smith, in his *Treatise on Fractures in the Vicinity of the Joints*, as external to the coraco-clavicular ligaments, are really between them, and that his observations on this accident, and those of Mr. Erichsen,[1] apply more correctly to the fracture between than to those external to the coraco-clavicular ligaments."

Professor Gordon presents the following views with regard to the treatment of this injury:—

"The main use of the clavicle is to keep the scapula outwards, and thus preserve the transverse breadth of the shoulder, giving to the upper extremity a greater freedom and scope of action. No matter what may have been the occupation of the individual, the upper surface does not change its form; but such is not the case with its anterior and posterior borders; they become curved just in proportion to the laborious occupation at which the individual may have been engaged. Hence, when the clavicle is fractured, the scapula, no longer held outwards by it, takes the direction which the physiological action of the muscles impresses upon the sound bone, that is, forwards and inwards. The thorax represents a cone, the transverse diameter of which rapidly increases from above downwards; it also slopes obliquely downwards and forwards; and besides its greatest transverse diameter, against which the base of the scapula and a small portion of its venter rest, is not in, but behind its centre. The external two-thirds of the venter and neck of the scapula are not in immediate contact with the ribs, but are held outwards by the clavicle. Now, if we place the scapula, supported by the clavicle, in its natural position, and then withdraw the clavicle, the venter or fossa subscapularis will become more extensively applied to the thorax, and although the posterior border or base of the scapula may still maintain its relative position on the ribs, its external or acromial angle will fall forwards and inwards. Hence, in fracture of the clavicle, this rotation or alteration in the direction of the scapula causes the outer fragment of the clavicle and acromial angle of the scapula to be depressed, though the scapula itself, in its vertical relation to the ribs, has not undergone any change.

"If we observe carefully a person who has sustained a recent fracture of the clavicle, we see that he inclines towards the injured side, with the shoulder seemingly depressed; and if, at the same time, we examine the spinal column, it will present a concavity towards the injured side. If we now direct the patient to straighten himself until the curvature of the spine disappears, and then compare the two shoulders, in most recent cases we shall see that the shoulder of the injured side is no longer depressed, but actually raised; and the more it is elevated, the more will the scapula come into relation with a narrower part of the thorax, and the more, therefore, will its acromial angle fall forwards, inwards, and downwards, diminishing the distance between the sterno-clavicular and acromio-clavicular articulations.

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[1] Science and Art of Surgery.

"The explanation hitherto given by surgeons of the displacements in fractures of the clavicle is, that the outer fragment is drawn forwards and inwards by muscular action, and mainly depressed by the weight of the extremity. That the outer fragment lies beneath the inner one, there cannot be any doubt; however, that it and the scapula are dragged downwards, relatively to the thorax, by the weight of the extremity is a statement the accuracy of which I cannot admit. Is such an explanation in accordance with the recognized influence of muscular contraction in causing deformity? The muscles in this fracture, as in others, are not passive, but active. The weight of the extremity being regarded as the chief agent in causing displacement, the treatment has been conducted so as to counteract it. The lower end of the humerus has been brought forwards, and used as a lever, to force, by its upper end, the scapula upwards, outwards, and backwards, and thus made to counteract the displacement downwards, forwards, and inwards. Have not the form of the thorax and the relations of the scapula to it been overlooked? Has this treatment been successful? All practical surgeons bear testimony that in fractures of the clavicle the treatment has not been very satisfactory. Overlapping of the fragments is the rule, and accurate adaptation the exception.

"The following seems to me to be the nature and cause of the displacement. When the clavicle is broken, the outer or acromial angle of the scapula, no longer held outwards, falls forwards, inwards, and downwards. The form of the thorax conduces to this movement, but the chief agents are the serratus magnus, lesser pectoral, and subclavius muscles; and whilst the scapula is in this position, the rhomboideus levator angulæ scapulæ, and the trapezius muscles elevate it, also assisted very much by the action on the humerus of the clavicular and upper sternal fibres of the great pectoral. The patient leans to the injured side, not to allow the shoulder to be depressed, but to relax the muscles excited to contraction by the irritation of the broken surfaces. To counteract the displacement that occurs, let a large pad, larger than that usually employed, be placed in the axilla, and fixed there by a figure of 8 or clavicular bandage, sufficiently tight not only to fix the pad steadily, but also to keep the shoulders well backwards; let the arm now be extended directly downwards and firmly fixed to the body by a bandage or belt carried horizontally around the body, and permanent extension maintained by passing a band around the perineum or upper and inner part of the thigh (the same as the perineal band used in fractures of the shaft of the femur when treated by the long splint), and extending around the upper end of the forearm, flexed at right angles with the arm.

"When extension is thus made on the arm directly downwards with a large pad in the axilla, the outer fragment passes outwards, and comes into the most accurate apposition with the inner, and this is materially assisted by the form of the thorax, for, as we pull upon the arm, and thus drag the scapula downwards, it is forced outwards and brought over a wider part of the thorax, which counteracts very much the tendency to displacement inwards."—*Dub. Quart. Journ. Med. Science*, Nov., 1859.

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33. *Value of Internal Incision in the Treatment of Obstinate Strictures of the Urethra.*—Mr. HENRY THOMPSON read a paper on this subject before the Medical Society of London (Oct. 8, 1859). He commenced by observing that it was not his object to advocate any particular method of treating stricture as the exclusive one, or even as of very general application. In no complaint was there more necessity for exercising a sound discrimination as to which of the various methods sanctioned by experience should be adopted in each individual case. He introduced the subject of internal division of stricture as a mode of treatment which, when properly applied, is one of extreme utility in some of those exceptional cases which had been found not amenable to dilatation. He was prepared to substantiate this statement by the records of a considerable experience. He thought that the many hazardous modes of performing the operation which had been practised at various times and places, but especially on the Continent, had by their bad results naturally raised some prejudice against

incision altogether. But it would be his endeavour to discriminate between these modes, and to point out one which had been proved safe and satisfactory in a very high degree. There are two classes of cases to which the author conceived internal incisions to be applicable: 1. Those in which the stricture is so unyielding that no dilatation, simple or continuous, materially enlarges the passage or ameliorates the symptoms; such examples usually occurring in patients who have been subject to the complaint for twenty years or more, and who have undergone repeated and long-continued courses of treatment. 2. There is a class of cases for some of which, severe and obstinate stricture having occurred in comparatively early life, internal division appeared to be the most appropriate treatment. For these, the object of the operation is not only to remedy present difficulties (as in the preceding class), but also to anticipate future ones, since it is almost absolutely certain that serious, if not fatal injury will result long before the term of life is past, where during the early part of it a severe stricture is established and merely palliative treatment is applied. He believed it to be a question which we are bound seriously to consider, whether it may not be more desirable to cure the patient if possible before extensive urethral disease has been set up, or organic complaints in the bladder or kidneys have been estabished, than to postpone the attempt until such changes either threaten or have taken place, and the effect of palliative measures has been wellnigh exhausted. This is a view of the subject which, in the author's opinion, has not been sufficiently considered. The manner of performing internal division of the stricture was next described. During the last few years Mr. Thompson had studied the modes generally adopted both at home and abroad, especially the latter, and had made it his business personally to examine and estimate them; the consequence of which was that he had employed the method about to be considered, and with a success, which gave him a high opinion of its utility. For the successful practice of the operation the three following conditions must be complied with: 1. The cutting instrument must be passed through the stricture, and the incision be made from behind forwards, that is, towards the orifice of the urethra, not from before backwards. 2. The limits of the stricture being first accurately defined, the whole of the contracted part should be divided. 3. The borders of the incision should be maintained apart by catheterism subsequently performed, and healing of the incision by first intention be thus prevented. After dwelling on each of these points at some little length, Mr. Thompson invited particular attention to an important point in connection with the kind of stricture to which incisions are applicable. He was anxious to combat a very generally-received opinion that the narrowness of a stricture is the measure of its severity, an opinion which is wholly erroneous and productive of grave error in practice. The truth is that a very narrow stricture—for example, one admitting only an instrument of the size of No. 1—sometimes produces comparatively slight symptoms, and is easily amenable to dilatation, while there are exceptional cases in which a stricture is by no means narrow, admitting say No. 4 or 5, but which is quite non-dilatable, and is accompanied by most severe symptoms. Narrowness, *per se*, is not therefore the gauge of severity. The most important characters of organic stricture, whatever may be its calibre, are non-dilatability and contractility; the former denoting a condition in which the tissue constituting the stricture is so unyielding that dilatation, however carefully employed, does but slightly enlarge its calibre, or improve the symptoms; the latter denoting a quality, through the agency of which, whatever temporary effect may be produced by dilatation, the original degree of narrowing reappears almost immediately after ceasing to employ the instrument. The erroneous belief referred to is exemplified in the remark so frequently met with, that if a No. 4 or 5 can be passed, any incision must be unnecessary. The fact, however, is that not merely the calibre, but many other conditions of the stricture, and also system at large, must be considered before it is possible to come to a conclusion respecting the kind of treatment which should be adopted. These points were discussed in detail by the author. There was one important fact in relation to non-dilatability, viz., that this particular quality of the stricture appears generally to be developed in proportion to its proximity to the external meatus; so that those cases for which incision is most indicated, are precisely those in which the incision is rarely accompanied by any risk whatever. The instrument which Mr. Thompson considers to supply the best method of fulfilling all the indications required in the majority of cases, is the urethrotome employed by Civiale for fifteen years past, and now slightly modified from the original pattern. The mode of employing it was minutely detailed, and the after-treatment described. For cases in which the stricture is too narrow to be treated by this instrument, Mr. Thompson employs a simple urethrotome of his own design. The accidents which might happen after internal incisions were then discussed and considered from the facts presented in the careful observation of forty-two cases treated by the especial form of urethrotomy described. These accidents were proved to be slight, and in no single instance had led to a fatal, or even threatened a dangerous result. The important fact, said the author, is this, that, in most cases it is in our power by internal urethrotomy to replace a confirmed non-dilatable stricture by a condition of the urethra, in which the occasional use of an instrument maintains the normal calibre. In this manner we may confer upon the patient a benefit of no ordinary value, not only in relation to the removal of present symptoms (which may be accomplished equally by other methods); but in the prevention of those more serious evils, which will certainly arise in the course of advancing age. It is this which has long been an important desideratum in practice; unhappily it has been the custom to regard too much the present results, and too little the future difficulties in our treatment. Most triumphant is dilatation in regard to the present in the great majority of cases, but in a certain proportion of them it does but postpone the evil day. He claimed for internal urethrotomy, when properly applied to appropriate cases, the position of an admirable adjunct or supplement to dilatation. It was on no account to be regarded as a treatment antagonistic to or competitive with dilatation, but as often rendering wholly amenable to that process a stricture which had been completely rebellious to it before. Finally, Mr. Thompson presented the details of eight cases, which he had taken from his own practice as illustrations, each one of which had been treated by him either in the public wards of University College Hospital, or in connection with some medical man, whose name was given as corroborative of the statements made. The results were of the most satisfactory nature.—*Med. Times and Gaz.*, Oct. 29, 1859.

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34. *Operation for Artificial Anus in Children.*—A short discussion upon this subject, of some interest, recently took place at the Academy of Medicine. It originated in a communication from M. Rochard, of Brest, who, referring to a former debate, during which some members of the Academy had expressed doubts whether the subjects of operation for artificial anus ever attained the adult age, now adduced five instances in which this had been observed. The reason why M. Rochard has been able to record so great a number of cases seems to be, that since the successful operation by Duret, in 1793, great numbers of children suffering from congenital deficiency of anus have been brought to Brest. The first case referred to by M. Rochard is the above case operated upon by Duret, the subject dying in 1836 only. 2d. A woman, operated upon by Serand, in 1813, is still alive and robust, suffering but little inconvenience from the artificial anus. 3d. A lady operated upon in 1816 is still living at Brest, the mother of four children, and in the perfect enjoyment of life. 4th. A woman, who died at the age of thirty; and 5th, a lad, who died at fourteen, both of causes independent of the infirmity. All these operations were performed by Littré's method. In all the cases there was eversion of the lower end of the intestine. The tumour was only in part reducible, but it was insensible to the touch, and the mucous membrane covering it, in spite of exposure to the air and to contact with the bandages, &c., never became inflamed. M. Robert, who reported upon this paper, agrees with its author in recommending that whenever in a case of imperforate anus no fluctuation can be detected in the ano-perineal region, no operative procedure should be attempted in this direction, but recourse immediately had to forming an artificial anus in the groin. Malgaigne, Velpeau, and others joined in the discussion on the subject, but for this we must refer to the original account.—*B. and F. Med.-Chirurg. Rev.*, Oct., 1859, from *Bull. de l'Acad.*, t. xxiv.

35. *Hemorrhage from the Bowels in Children as a Sign of Polypus of the Rectum.*—Mr. BRYANT, Assistant Surgeon to Guy's Hospital, makes (*Lancet*, Nov. 26, 1859) some interesting remarks on this subject, and relates several illustrative cases. The connection between hemorrhage from the bowels in children and the existence of polypus of the rectum is very constant. In the majority of cases which Mr. B. has observed, he says "the disease has existed for many months; they have all occurred in children under ten years, and in most the disease has been regarded and treated for piles. In some cases the discharge of blood from the bowel is constant, and the patient will be brought with its clothes stained, and its buttocks smeared with a bloody mucus. In these instances the polypus will generally be found to be within, if not protruding from, the sphincter. In other examples, occasional discharges of blood will be observed, although not to any very great extent, and this discharge will generally accompany and follow the act of defecation. In others, again, the hemorrhage will take place independently of any such process. There will generally be some straining after stool, but I have never observed any prolapse of the rectum; and although this disease is troublesome to the child, and of course debilitating, by the repeated, if not constant hemorrhage, when once recognized it is easily treated, and rapidly cured."

"The recollection," Mr. B. remarks, "that such a disease is not uncommon, and that it is always associated with hemorrhage from the bowel, should at once lead the surgeon to examine the part with his finger, when the growth will probably be easily detected. It is generally situated about one to two inches up the bowel, and will be found to vary from the size of a pea to that of a large nut. In some cases more than one will be present; they are always very movable, and easily slip away from the finger upon anything like pressure; and, at times, some little difficulty is experienced in fixing them for removal. Such a practice is the only correct treatment, being invariably followed by a successful result. It may be done by means of forceps or ligature; and in many cases I have broken the polypus off its attachment by hooking my finger round its pedicle. No bad result has ever followed. The pedicle is always very slender, although it may be an inch or more in length.

"The structure of the polypus is very simple, microscopically presenting the ordinary characters of the fibro-cellular growths. After removal, no subsequent treatment is required, and recovery may confidently be expected; the rectum, however, should be carefully examined, so that a second polypus be not overlooked.

"I have thus briefly brought this small but not unimportant subject before the notice of the profession, feeling confident that the existence of polypus of the rectum is not so uncommon as is generally believed, and that such an affection is usually mistaken and treated for piles. In children, the presence of bleeding from the rectum should at once lead the practitioner to suspect the existence of a polypus; and, when detected, its removal is the only correct treatment. I have never had an opportunity of seeing a child suffering from piles, and believe that cases so described are generally mistaken, and that, in reality, they are cases of the disease now under consideration."

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36. *Deodorization of Foul Ulcers.*—Mr. WEEDEN COOKE, at a meeting of the Medical Society of London (Oct. 24), referred to the sulphate of lime and coal tar which has lately been much used and extolled in the French and Italian hospitals for the purpose of cleansing foul and sloughing ulcers. He had himself employed it, and thought that its virtues and advantages were much overrated; that it sometimes produced more irritation in the part than was desirable, and that it was less convenient in application than other equally effective cleansing remedies, whilst it was far inferior in value in sloughing ulcers to that combination of the manganate and permanganate of potash called "manganese cum potassâ." A distinction should be drawn between ulcers secreting unhealthy pus which rapidly decomposed, and ulcers that were foul because of sloughing tissue which would not readily come away. In the former class the chlorate of potash lotion was the neatest and most effective agent in cleansing the ulcers, and rapidly neutralizing the smell by the amount of oxygen which was contained

in the salt. The carrot poultice, the charcoal poultice, and chloride of lime were also very useful in this form of foul ulcers, but none of these was thoroughly effective in foul sloughing ulcers. In these the root of the slough must be destroyed by some caustic application, and this was best effected by the application of manganese cum potassâ upon a small piece of lint the size of the slough. It is very quick in its action; in the course of twenty-four hours the slough generally came away, and with it all the foul odour which had previously been so offensive and injurious, not only to the patient, but to all whose duty it was to be in attendance.

In the discussion which ensued, various applications were mentioned by different speakers, such as charcoal, nitric acid, the tincture of perchloride of iron, lemon-juice, &c. The tincture of the perchloride of iron produced so much pain that the French surgeons in the Crimea had reported against its use. Lemon-juice and nitric acid, diluted according to the circumstances appertaining to the condition and the nature of the sore, were found to be the most efficacious; and Dr. James Bird remarked, that the experience of the French surgeons coincided with his own. When in India, he had found the application of nitric acid, properly diluted, to be the most effective of all remedies, both in hospital gangrene and offensive ulcers.—*Lancet*, Oct. 29, 1859.

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37. *Corns on the Sole of the Foot.*—Mr. HOLMES COOTE calls attention (*Lancet*, Dec. 10, 1859) to the treatment of corns on the sole of the foot. The pain attending these is so great that patients are sometimes unable to walk or stand. Mr. Erichsen notices it in his work on surgery. "It is usually," he says, "of small size and round in shape, the neighbouring cuticle being always greatly thickened and hardened. It is extremely sensitive to the touch, the patient shrinking when it is pressed upon, as if an exposed nerve had been injured. On slicing it down with a scalpel, it will be found to be composed of soft, tough, and white epidermis, arranged in tufts or small columns, in the centre of each of which a minute black dot is perceptible. Each tuft appears to be an elongated and thickened papilla, and the black speck is a small point of coagulated blood which has been effused into it. Around the depressions in which each of these corns is seated the hardened cuticle forms a kind of wall."—p. 439.

Mr. Coote has known ulceration to occur in this morbid structure, when a deep and foul sore, excessively sensitive, is formed. It may be healed by rest, but it recurs when the patient resumes the usual habits.

"Now the cause of these corns will generally be found," Mr. C. says, "to proceed from a tense condition of some of the important tendons, that most frequently affected being the tendo-Achillis. When it is so contracted, the foot cannot be raised beyond a right angle; and it follows that the weight of the body is unduly thrown on the fore part of the sole of the foot, where the corn speedily forms. The contraction of the tendon may be so slight as to need careful examination for its detection; but so long as it exists the cause of the corn remains, and it will be found that any other measure, less than the division of the tendon, will be only palliative. The subcutaneous division of the tendon, its elongation, and the restoration of the foot to its normal bearings, must be conducted on the usual principles of orthopedic surgery. The practice has been adopted many years at the Orthopedic Hospital; but it is not so generally known as, in my opinion, is desirable."

OPHTHALMOLOGY.

38. *Intra-Ocular Hemorrhage consecutive to the Operation for Cataract by Extraction.*—JAS. G. HILDIGE relates (*Dublin Hospital Gaz.*, Nov. 15th, 1859) the following case of this accident:—

"Mary H——, aged 65, widow, applied at the Eye Dispensary, Mecklenburgh Street, affected with complete lenticular cataract of both eyes. As the retinæ were perfectly sound, and the patient's bodily health good, with the exception of slight rheumatic pains, I determined on operating on the left eye by extraction. The lens, which was hard and of a light brownish colour, was extracted without the slightest difficulty, and scarcely a particle of vitreous humour escaped during the operation. It appeared, however, that the friends of the patient had given her a draught of porter previous to the operation, without my knowledge; and about an hour after I had left her, nausea and vomiting set in, a considerable quantity of vitreous humour was evacuated, and when I saw her, the flap of the cornea was protruding between the eyelids, and a portion of the bed-linen was saturated with blood, the space between the lips of the wound being filled by a mass of vitreous humour. Notwithstanding the application of cold lotions, cupping by means of Hurtleloup's artificial leech, &c., the hemorrhage continued for upwards of twenty-four hours, and the patient became so prostrated. that I proposed extirpation of the eye as the only means of arresting the flow of blood. This, however, her friends would not hear of, and the application of cold lotions was continued, her strength being at the same time supported by strong beef-tea, wine, etc. The hemorrhage was eventually arrested by this treatment, but considerable inflammation of the eyeball followed. At the end of three weeks, the patient had partially recovered her strength; the eyeball was, however, atrophied, and vision completely destroyed.

Rivaud-Landrau states that he has only met with this accident four times in two thousand cases of extraction of cataract. In two of these cases, he attributes the hemorrhage to the escape of a considerable portion of the vitreous humour during the operation; and in the remaining two, it was caused by a blow on the eye twenty-four hours after the operation.

"What are the phenomena," he asks, "which present themselves in the globe of the eye when a portion of the vitreous humour is evacuated?" During this movement, the ocular muscles contract spasmodically, which produces minute shocks on the eyeball; the portion of vitreous humour which remains in the deeper part of the globe executes a forced movement forwards, in order to fill up the vacuum. The vitreous humour, in being projected forwards, is detached forcibly from the chorioidea; and it is in this manner that the rupture of the minute sanguineous vessels which wind about the cells of the hyaloid membrane, and radiate from the chorioidea towards them, is produced. Intra-ocular hemorrhage is the immediate result of the rupture of the vessels during the detachment of the vitreous humour from the chorioidea.

Mr. White Cooper, on the other hand, maintains that the detachment of the vitreous humour, instead of being the cause of the hemorrhage, is merely the result of it. According to him, it is the accumulation of blood behind the vitreous humour which, in pushing the latter before it, produces the detachment. In fact, Rivaud-Landrau regards as the principal cause of the hemorrhage what White Cooper considers as merely the effect of it.

In four cases of extraction of cataract at the Ophthalmic Hospital, Moorfields, in which this complication occurred, the eye was extirpated in order to arrest the hemorrhage; and on dissection, a coagulum of blood was found in each case between the sclerotic and choroid coats, the choroid and retina being pushed forwards into the vitreous humour. This would speak rather in favour of Mr. White Cooper's theory.

In a recent article in the *Giornale d'Oftalmologia Italiano*,[1] Dr. Olioli proposes digital compression of the carotid artery on the side corresponding with that of the hemorrhage, as a means of arresting it, instead of resorting to extirpation of the eye. Although he has not had an opportunity of proving the efficacy of this treatment, yet he cites a case of aneurism of the ophthalmic artery in which it was employed with success by Prof. Gioppi, of Padua, and infers from this that the same means might be resorted to with immediate benefit in intra-ocular hemorrhage.

Rivaud-Landrau makes the following remark, speaking of the occurrence of the accident after the extraction of the cataract: "La quantité du sang évacué ne peut jamais être assez considérable pour entrainer à sa suite un danger sérieux."[1] This assertion is not borne out by the case I have just related; and in another case, operated on by White Cooper, the hemorrhage lasted for thirty-seven hours, and the patient being eighty-seven years of age, serious doubts were entertained of saving her life.

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[1] Emorragie Intra-oculari od Emoftalmie, e Proposta della Compressione Digitale per Arrestarle. Per A. Olioli, medico-chirurgo oculista esercente in Galliate.

39. *Night-Blindness, in Connection with Scurvy.*—The *Ophthalmic Hospital Reports* for July, 1859, contains a very interesting paper on this subject by Dr. ALEXANDER BRYSON.

"Night-blindness," Dr. B. remarks, "most unquestionably occurs much more frequently in scurvy than is generally supposed, but in consequence of the simultaneous existence of some more serious symptom, or of symptoms of a less ambiguous character, it frequently passes unnoticed. In fact, in the naval service, patients are generally placed on the sick-list before it occurs, or at all events before it becomes so decided as to induce the patient to complain of it. Still it is almost certain that scurvy occasionally shows itself without any concurrent defect of vision, while there are other instances in which nearly every second case is accompanied by it.

"The following is a remarkable instance of the prevalence of the disease, in connection with scurvy. The crew of Her Majesty's brigantine, 'Griffon,' employed on the west coast of Africa, for the prevention of the slave-trade, had been victualled on salt rations for five months consecutively, when several of the men began to complain that they could not see to do their duty on deck at night, though the moon shone brightly at the time. Amongst themselves it was called moon-blindness, consequently it did not cause much alarm, until out of about fifty white men, twenty-two were affected, and immediately after the sun went down, they had to be led about on the upper deck, in a helpless state of blindness. There was now just cause for alarm, as the vessel with so many men unfit for night duty, was hardly a match for any of the well-armed slavers so common on the coast at that period. Fortunately a man presented himself, complaining of a sore, and a swelling on the calf of one of his legs, the true nature of which there was no mistaking; on examination, his gums were found to be swollen and spongy. He was one of those affected with night-blindness; the other men similarly affected were next examined, as well as those whose vision by night was still good, when it was ascertained that all of the former presented the most unequivocal symptoms of scurvy, and a few of the latter had spongy gums. The officers, five in number, were not attacked either with scurvy or night-blindness, but they had a more varied diet than the men. To obtain fresh meat, fruit, and vegetables, the vessel anchored at Prince's Island, and three days afterwards nearly the whole of the hemeralopic patients had entirely recovered their vision.

"The ship's company of the 'Dolphin,' another African cruiser, had, in the year 1851, been a long time without obtaining any supplies of fresh meat or vegetables; consequently scorbutic symptoms made their appearance, and at the same time there were ten cases of night-blindness. The medical officer mentions that nearly all these men were able to distinguish objects at the distance of three yards by candle-light, and even to read a book held close to the candle; but the instant they went on the upper deck, they gradually began to lose sight of surrounding objects, and had to be led about from place to place. A few could plainly distinguish the stars and the top-gallant masts and yards, but below that plane they could not see anything. Two cases occurred in the 'Dart,' while employed in the Mozambique Channel, for the cure of which blisters and various other means were used; one improved, but the other resisted various modes of treatment, until the vessel anchored in Simon's Bay, and fresh provisions were issued to the crew, when the patient, to the astonishment of the assistant-surgeon, suddenly got well.

"Scurvy made its appearance in several vessels in the Black Sea in the year 1854, and with hardly an exception it was accompanied with night-blindness. In the 'Vengeance' eleven men were put on the sick-list for scurvy, but many others were suffering in a less degree. Eight cases of night-blindness occurred at the same time; some of these patients showed scorbutic symptoms, while others were apparently free from them. None of the officers were affected with either of these diseases, which were simultaneously removed by a better diet.

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[1] Gazette des Hôpitaux, May 31st, 1859.

"In 1855 there were upwards of seventy cases of scurvy in the 'Euryalus,' but two only of night-blindness were noticed. Her Majesty's ship, 'Brisk,' was seventy-two days in making a passage round Cape Horn to San Francisco; consequently during all that time no fresh meat or vegetables could be procured. Before she reached the above port, the surgeon examined the men, and found twelve with scorbutic symptoms; seven cases of night-blindness had occurred during the passage, and four of these were the worst cases of scurvy. They all recovered immediately after they obtained fresh meat and vegetables.

"One of the most remarkable instances of scorbutic night-blindness occurred in the 'Winchester,' while she was returning from India. Twenty cases were entered on the sick-list between Trincomalee and the Cape of Good Hope, but they all recovered when the vessel anchored at Simon's Town, and fresh provisions were issued to the crew; on the passage between the Cape and England, however, when the men had been for some time victualled on salt provisions, the disease reappeared in the same persons, and continued until they obtained fresh provisions at Spithead.

"In convict-ships proceeding to Australia, both scurvy and night-blindness have frequently made their appearance, but the latter often escapes notice in consequence of the prisoners being sent down into prison either at, or a little after, sunset. In the 'Marquis of Hastings," which conveyed prisoners to Hobart Town in 1841, many cases of scurvy occurred, and there were ten of night-blindness, which presented no other symptoms of scorbutic disease.

"In all these, and in many other instances of a similar nature, the appearance of the disease simultaneously with scurvy, and its sudden disappearance when a better diet is obtained—the absence of the disease in vessels in which the men have a sufficiency of fresh meat and vegetables, even though employed in the same localities with others in which it has made its appearance—shows that it is entirely dependent on an improper or erroneous diet."

MIDWIFERY.

40. *Statistical Study of the Causes and Relative Proportion of Stillbirths in Private Country Practice.*—Dr. R. Uvedale West has published (*Lancet*, Nov. 12, 1859) a tabular view of the stillbirths which occurred in 2,962 cases of midwifery, including 36 twin cases, and comprising, therefore, 2,998 children born. No account is taken of abortions. The following is a summary of this table:—

"The total of stillbirths from all causes, as shown in the table given above, is 111 out of 2,998 children born; a proportion of 1 in 27. Of these, 50 were putrid at birth, with various special circumstances noticeable; 8 were cases of craniotomy; 7 were cases in which the death of the child was caused by difficult delivery of the head in footling births, the funis being compressed; in 7 cases, where the funis was prolapsed early in the labour, the death of the child was equally caused by compression of that important organ; 3 deaths are explained by *placenta prævia;* 6 by the severity of protracted labours left to the natural efforts; there were only 2 deaths from severe or protracted labour where instruments were used; in 1 case embryotomy was practised to effect the delivery of monstrously-adherent twins, accounting for the death of 2 children; in 2 cases the ovum was expelled entire before my arrival, and the children suffocated or drowned; 2 of the children exhibited deficient development of the head: 1 was dropsical—*anasarcous* and *ascitic*; 4 deaths are explained by profuse hemorrhage accompanying the labour; 2 by convulsions of the mother during or preceding the labour; in 1 case there was very clear evidence of latent compression of the funis during the labour; 1 death is explained by difficulty of turning in a neglected case of arm-presentation; in 3 cases the mothers were either moribund or seriously ill; in 3 of the non-putrid cases the placenta was either putrid or diseased; and in only 7 cases it was not possible to assign a cause. Several of the women are shown to be liable to a recurrence of dead children born.

"The ergot of rye is considered by some to be destructive of the life of the child. For that reason I have thought it right to specify in every case, even in the putrid ones, whether the ergot was or was not given. It results that the ergot was given in 24 cases out of the whole number of 111 children born dead. But as the vast majority of the deaths where ergot of rye had been given are explicable from other causes, I think we may acquit this much-abused drug, and especially so if we study the last list of cases—that, namely, where the 'cause was not manifest.' Let me here explain that I have given the ergot of rye 201 times out of the last 800 cases I have attended. This is a frightful proportion; but never mind. My register stands at No. 2,962 at the present date. If the list of 'cause not manifest' be now looked at, it will be seen that the last 4 cases in that list fall within the 800 cases alluded to. The ergot of rye was given in only 1 of those 4 cases; precisely the proportion of ergot of rye for the whole number of 800—1 in 4.

"I have thought it important in the study of the causes and the frequency of the mortality of children during labour, to insert in my table the number of each case. It may thus be seen at a glance how far the inexperience of a young practitioner may contribute to an increase of such mortality. Let us, for example, examine the numbers of the cases of craniotomy. It will be seen that nearly all the cases that I was exclusively responsible for, fall within the first 1,000. How far a gradually acquired ability in the use of the vectis and forceps[1] may have enabled me to discard this *wilful murder* from my practice, I leave to the judgment of my readers, pointing out at the same time that *pari passu* with what I may call the *abolition of craniotomy*, or, at any rate, the greatly diminished frequency of the practice, the fœtal mortality from unassisted protracted labour disappears also from my practice."

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[1] It may assist the reader in the appreciation of my argument if I here state briefly that I delivered, with the one or the other of those instruments, in the first 1,000 cases, 4 times only; in the second 1,000, 16 times; and in the third 1,000, now nearly completed, 77 times, with the result, as regards the life of the child, shown in the text. And the following extract from the index to my register will illustrate, though, perhaps, more feebly, the advantage of artificial assistance in other circumstances of danger to the life of the fœtus than mere protracted labour:—

FUNIS PROLAPSED; in 19 cases; in which,

The child born dead: 11 cases, viz.:—
  Head-presentation; left to nature; 168 B., 726 G., 2,400 B.
  " " forceps case: 2,301* B.
  " " difficult turning case: 2,683 B.
  Feet-presentation: 645, 1,916, 2,057, 2,065, 2,228. Of which,
    Child putrid: 1,916 G., 2,057 G., 2,228 G.
    Placenta prævia: 645 B.
  Arm-presentation; turning performed: 69 B.
The child born alive: 8 cases, viz.:—
  Head-presentation; left to nature: 1,667 B., 2,345 G.
  " " vectis used: 1,643 B.
  " " turning performed: 2,504 B., 2,553 G., 2,579 B.
  Arm-presentation; turning performed; 2,281 G.
  Feet-presentation, with placenta prævia; 1,316 G.

CONVULSIONS OF THE MOTHER,

Preceding or accompanying the labour: 2,191, 2,320, 2,729. Of which,
The child born dead; 2 cases, viz.:—
  Labour unassisted: 2,191* B., 2,320* B.
The child born alive; 1 case, viz.:—
  Delivery with vectis: 2,729* G.

It is very probable that, although the mere expulsion of the child might have been easily effected in cases 2,504, 2,553, 2,579, and 2,729, if they had been left to nature; yet the children would have been all born dead, if artificial delivery had not been performed.

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41. *Statistical Report of Thirteen Hundred Midwifery Cases attended in Private Practice.* By ANDERSON SMITH, F. R. C. S.—Of 1,320 children, 700 were males, 620 females. 1,255 were born alive; 65 dead—of these, 24 were putrid. Premature births numbered 38; twin cases, 20; of these, 35 children were born alive, 1 dead, and 4 putrid. Malpresentations and positions were 58—namely, forehead towards the pubic arch, 20; face, 2; breech, 23; of these, 14 children were born alive, 7 dead, and 2 putrid. Lower extremities, 8; 4 alive, 3 dead, and 1 putrid. Arm, 1 alive. Compound, 4; 1 alive, 3 dead. Prolapse of the funis happened in 6 cases, in all of which the children were stillborn. Accidental hemorrhage occurred 14 times; in 10 cases the children were born alive, in 4 dead. 3 cases of complete placenta prævia, the children stillborn; 2 of partial placenta prævia, 1 child alive, the other dead; 6 cases of slight post-partum hemorrhage; 2 of epileptic and 1 of hysterical convulsions; 3 of peritonitis; 1 of mania. Version was had recourse to in 4, the forceps in 25, and craniotomy in 3 cases. The average duration of labour in primiparæ was 18½ hours; the shortest at the full time, 2¼ hours.

Remarks.—Of the 41 stillborn, death in 29 cases was the result of malpresentation, accidental or unavoidable hemorrhage, prolapse of the funis, or craniotomy. Of the remaining 12 cases, in 1 instance the funis was prolapsed and pulseless before the expulsion of the shoulders; 2 children made ineffectual efforts to respire; in 1 case, the mother had at her previous confinement been delivered of a putrid fœtus; 2 were the children of mothers suffering from disease of the heart; 1 was the second of twins; and the remainder were mostly prematurely born.

In the 2 cases of partial placenta prævia, I merely ruptured the membranes, and the labours terminated naturally. Of the 3 of complete, in two instances I tore through the placenta, turned, and brought down the feet. In the third, I was pursuing the same treatment, when a violent pain expelled the placenta, and, although the hemorrhage then ceased, the patient died on the fourth day; and I may here state that this is the only instance in 1,300 cases in which the mother has died from any cause connected with parturition.

Not once has there occurred a case either of retention of the placenta or severe post-partum hemorrhage. Immunity from both these complications I attribute mainly to two causes—namely, the practice of applying a binder as soon as the second stage of labour commences, tightening it directly after the birth of the child, and again after the expulsion of the placenta, and abstaining from the administration of ergot. By the former the regular contraction of the uterus is effected, and by the latter its irregular contraction prevented.

The number of forceps cases appears great, but, as far as my experience extends, no bad consequences have resulted from their use; and I am inclined to believe that laceration of the perineum is rather prevented than caused by their timely employment.—*Lancet*, Nov. 12, 1859.

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42. *Statistics of Midwifery from the Records of Private Practice.*—Dr. DUNN read before the Obstetrical Society of London a summary of his midwifery records for twenty years. He began by expressing his conviction that the records of private practice might be usefully and advantageously contrasted with the statistics of lying-in hospitals and public institutions; and that while his own experience could only be brought to bear upon the working and middle classes of society, he hoped—seeing how important was the influence which the different modes and habits of life had upon the parturient process—that other Fellows of the Society would not be wanting to supply the desiderata in relation to the other grades and ranks of social life; not only to the highest, to those living in the lap of luxury, surrounded by the elegances and enjoying all the indulgences of life, but also to the lowest, to those sunk in the depths of indigence, ignorance, and penury, and often without even the ordinary comforts of life. The author

considered that what had been said of statistics in relation to medicine in general, applied with peculiar force to obstetrics in particular; for what we wanted in midwifery "were facts, comparable facts, numerous facts, well observed, carefully arranged, minutely classified, and acutely analyzed." From 1831 to 1850, a period of twenty years, he had registered 4,049 cases of midwifery as occurring in his practice. Of these, after deducting 228 for premature births, there were 2,133 male, and 1,688 female children. In regard to plurality of infants, there were 2 cases of triplets, and 45 of twins. He had met with 3 cases of monstrosity, one of which was worthy of notice, and had been put upon record in the *Lancet* for April 27, 1844. It was that form of monstrosity which Dr. A. G. Otto has designated *Monstrum humanum sereniforme.* He had met with one instance of the hydatidiform or vesicular mole, and several cases of cranial blood-swellings, 3 of hare-lip, 4 of cleft palate, 3 of spina bifida, and 5 of imperforate anus. In one of the last, Amussat's operation for artificial anus in the left lumbar region was attempted, but was not successful—the descending colon was found to be impervious and not larger than a crow-quill. There were 170 stillborn children in all, from various causes, and in 30 cases death was attributable to the pressure of the cranial bones upon the brain in tedious and difficult labours. There were 60 instances of preternatural presentations. Of 11 cases, in which there was a prolapsus of the funis, 8 were born dead; and of these, in 3 instances the cord came down with the head, in 2 with the head and arm, in 1 with the foot, and in 2 with the shoulder. Of 25 breech-presentations, 9 were stillborn; and of these, 5 were putrid. There were three face-presentations, 1 child dead; 11 cases face to pubes; 2 head and arm, both dead; 3 hand, and 3 footling cases. In the use of the forceps the author confessed to have had but slender experience. Impressed with the importance of the maxim, that "a meddlesome midwifery is a bad midwifery," he had always, in the absence of danger to the life of the mother, and when convinced, in his own mind, that the natural efforts would effect delivery, been content to wait, and had avoided instrumental interference. He had had ten cases of craniotomy; two proved fatal to the mothers—one from sloughing of the bladder, the other from a tumour at the neck of the womb. Once satisfied that the child was dead, he had never hesitated to have recourse, without delay, to craniotomy. The use of the stethoscope in such cases he considered of paramount importance. Of placenta prævia, six cases had occurred in his practice; three since the promulgation of Dr. Simpson's views and mode of treatment. He gave a brief narrative of two of these; one as having presented evidence to his own mind that the detached portion of the placenta, from its appearance and condition, had afforded the channel through which the blood had gushed; and the other as being an instance of the instantaneous arrest of the hemorrhage as soon as the placenta had been entirely and completely separated from the uterus. He had met with thirty cases of adherent placenta requiring the introduction of the hand into the uterus; and four instances of the hour-glass contraction. He had witnessed two fatal cases from sheer exhaustion after delivery, where the hemorrhage before the birth of the child had been great; and one fatal case of internal flooding. Other fatal cases of exhaustion he referred to, which were unconnected with the loss of blood. One interesting and instructive case had come under his notice, in which, while the mother lay in a state of coma from an apoplectic seizure, and the phenomena of life were reduced to a mere series of automatic movements, a fœtus of five or six months was expelled from the womb. Of twelve cases of puerperal fever which had occurred, three were acute, and terminated fatally. In one of these, the placenta had been found adherent, with hour-glass contraction of the uterus, and great hemorrhage. In all, excepting where an hereditary tendency existed to mental disease, the loss of blood had been great. Of puerperal convulsions, he had met with four cases—none fatal; of phlegmasia dolens, six, and two proved fatal; of scarlatina, three, and one died.

Dr. Tanner remarked that the ruling law in Dr. Dunn's practice seemed to have been the old proverb, that "meddlesome midwifery is bad." Dr. Tanner considered that this rule was the cause of a great deal of mischief. In practice it was not only necessary to consider the life of the mother, but also to how great an extent we might beneficially mitigate her sufferings. A lingering labour could hardly be otherwise than injurious to both mother and child. Although his practice had been much smaller than Mr. Dunn's, yet during the last twelve years he had employed the forceps much more frequently than this gentleman, and had obtained only the happiest results from such a proceeding. He had never found the slightest mischief result from it either to offspring or parent.—*Med. Times and Gaz.*, Nov. 12, 1859.

43. *Sickness of Pregnancy.*—Dr. C. E. Bagot calls attention (*Dublin Med. Press*, Oct. 12, 1859) to the employment of calomel pushed to slight salivation as a most successful mode of relieving this sometimes intractable and dangerous affection; a practice which he recommended in 1846. In that year he had under his care a woman labouring under that extreme form of sickness from pregnancy which placed life in the most imminent jeopardy. I had tried all the usual remedies suggested in such cases, and found them one after another to fail in producing any relief. Although there were no symptoms whatsoever which would make me suppose that any inflammation was either the proximate or remote cause of the sickness, I resolved to try the effects of mercury, and having had some experience of the powers of calomel in allaying other forms of vomiting, I fixed on the administration of this preparation, steadily persevering in its use until her gums showed appearances of salivation, which they did in a very short time. This treatment resulted in the best effects. Immediately that slight salivation took place, the vomiting, previously so persistent, at once ceased, food remained on the stomach, the patient rapidly recovered, and was in due time safely delivered of a full-grown infant.

The sickness of this patient, Dr. B. says, was of the very worst form, her symptoms were so urgent that he despaired of her existence being prolonged; her prostration of strength was excessive; her emaciation extreme; her pulse a small thread; she had no tenderness in the epigastrium; neither had she pain in the region of the womb, nor the least uneasiness on pressure over that organ; she had no febrile nor inflammatory symptoms, and yet the most complete relief followed the exhibition of the mercurial pushed to slight salivation.

In two subsequent pregnancies this patient suffered equally from the same urgent symptoms, and on both occasions she was relieved by the same medicine.

44. *Normal Hypertrophy of the Heart during Pregnancy.*—In our number for July last (p. 276) we gave a brief notice of the researches of M. Larcher on this subject, and shall now furnish a fuller account of them.

Mr. Larcher has had ample means of investigating this subject at the Paris Maternité, for he has examined 130 pregnant women, the greater number of whom succumbed to puerperal fever—no lesion having preceded or given rise to the condition of the heart observed in them. The conclusion he comes to is, that the *heart is normally in a state of hypertrophy during gestation.* The walls of the left ventricle become increased by at least from a fourth to a third in thickness, its texture being also more firm and its colour more bright—the right ventricle and the auricles retaining their normal thickness. These observations, made by M. Larcher, date back some thirty years, and have been confirmed by subsequent ones, made with great exactitude, by M. Ducrest, upon 100 other women: but why this paper has been so long in being published no explanation is given.

Within certain limits this condition of things may co-exist with the maintenance of health; but it none the less may be taken to express a predisposition to congestions and hemorrhages. If, as the general rule, the hypertrophy gradually disappears after parturition, it may be otherwise in exceptional instances, especially where the recurrence of pregnancy has been frequent, and with short intervals. Is this not a cause of the varied lesions of the circulatory apparatus so commonly met with in women who have borne many children, either at too premature an epoch, at too brief intervals, or during an unfavourable condition of health? There is every reason, too, to believe that the bronchitis, which is so common during pregnancy, derives much of its character of persistency from this condition of the heart. Again, may we not attribute to this the greater danger of pneumonia when developed in pregnant women, and the frequency with which abortion then occurs? The various forms of hemorrhage met with in pregnancy, as epistaxis, hæmoptysis, metrorrhagia, and apoplexy, are likewise predisposed to by this hypertrophy, normal though it be. Although pregnancy may, in the majority of cases, suspend or render slower the progress of pulmonary consumption, the progress of this affection becomes accelerated after delivery, and the still hypertrophied heart increases the perturbation of the respiratory apparatus.—*Med. Times and Gaz.*, December 3, 1859, from *Archives Générales*, tome xiii.

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45. *Inverted Uterus Replaced after a Lapse of nearly Twelve Months.*—Dr. CHARLES WEST reports (*Med. Times and Gaz.*, Oct. 29, 1859) the following case of this:—

A. A., aged 25, applied at the out-patients' room of St. Bartholomew's Hospital, August 27, 1854, when she gave the following history of herself:—

She had been married five years, and had given birth to two children, of whom the former was born after a natural labour two years and a half since; the second on October 16, 1858. The child in this instance also was born alive after an easy labour, but the placenta was retained for three and a half hours, during which time very great hemorrhage took place, and in consequence of it the patient became insensible, and was, therefore, unable to say whether it was eventually removed by hand, or expelled by the natural efforts. She was left by her labour in a state of such extreme weakness that she was quite unable to suckle her child; and suffered in addition from much pain in the abdomen and diarrhœa. These ailments confined her to bed; and at the end of five weeks phlegmasia dolens of the right leg came on, for which leeches were applied, and other treatment was adopted, until, at the expiration of seven weeks, she sought admission into the London Hospital, where she remained for a month, and left the hospital much benefited as far as that ailment was concerned.

Soon after leaving the hospital, and about three months after confinement, the menses first reappeared. From the first they were profuse, and intermingled with coagula; they lasted longer than natural, and returned more frequently, and for some time she had completely lost count as to when her periods were due, so frequent was their return, so almost constant their presence, while an abundant yellowish leucorrhœa appeared immediately on the cessation of the sanguineous discharge. The return of the hemorrhage compelled her on each occasion to keep her bed; but in spite of this precaution she had been reduced by it to a state of the most extreme exhaustion, her skin was sallow, her pulse very feeble, and very frequent, and she had the aspect of a patient suffering from advanced malignant disease.

On making a vaginal examination, a tumour of an oval form was discovered hanging down for about two inches and a half through the os uteri, which closely surrounded, but did not constrict it. Suspicion was raised as to its nature by finding that the pedicle of the tumour was of the same thickness as its extremity, and also by the fingers when passed up behind it encountering a *cul-de-sac*, as if the uterus, with the exception of its orifice, were inverted. Hemorrhage was not excited by the examination, but a rather abundant blood-stained purulent leucorrhœa. The patient was at once admitted into the hospital, and on the 29th the diagnosis was established by the following means:—

1st. The uterine sound carried round the pedicle of the tumour encountered resistance to its further passage all round at the distance of half an inch. The finger, though introduced easily behind the tumour, could not be passed in front of it, as the anterior lip was too closely in contact with it.

2d. The fingers introduced into the rectum could without much difficulty be carried above the fundus of the tumour, showing that the body felt per vaginam was not an out-growth from the uterus, but the uterus itself in an altered position.

3d. If while one hand was in the vagina the other was pressed firmly over the symphysis pubis; at first, no body was felt between the two hands. Pressure made against the tumour in the vagina, however, brought it before long within the grasp of the other hand, when it was possible, through the thin abdominal walls, not only to distinguish its contour, but even to perceive the circular depression in its upper part which indicated the point of inversion of the womb.

Dr. Tyler Smith's case[1] suggested an imitation of his proceedings, and accordingly, after efforts made with the hand by grasping and compressing the womb to restore its position, or at least to render it more yielding, an air-pessary was introduced into the vagina and inflated to as great an extent as the patient could bear. On the following morning the os uteri was found much more dilated, and its tissue much more yielding, so that the fingers could now be passed all round the tumour with ease, and everywhere discovered the inversion of the substance of the womb. Manipulation of the inverted uterus was repeated daily until the 5th of September, and the pessary was on each occasion reintroduced and reinflated, with the exception of one day, on which it was discontinued, in order to obtain relief for the bowels.

It did not seem, however, that much was gained by the proceedings beyond that increased dilatation of the os which was obtained by the first introduction of the pessary. The vaginal walls, indeed, were rendered more yielding by the extension to which they had been subjected by the pessary, so that the whole uterus admitted of being pushed up in the pelvis more readily than before, but no change was effected in the relation of the inverted body itself. A very offensive leucorrhœa had been excited by the pessary, and its distension had occasioned a very painful stretching of the vagina; but in spite of this the patient's health was already much better than at the time of her admission; she had already gained strength, and her complexion had lost something of its sickly hue.

I now attempted to modify the instrument, and had a pessary constructed so as to expand at its upper third more than elsewhere, in order to avoid needless stretching of the vagina; while it was fitted, by means of a wire stem, to a girdle which encircled the body in order to obtain a fixed point from which the pressure should act; a condition altogether absent in the air-pessary as at first employed.

This was first tried on September 20, the patient having remained since the 5th without any attempts at the replacement of the organ. Some advantage seemed to be gained by the pessary thus modified. It retained its position well, and seemed to produce less discomfort, and to cause a less profuse and less offensive discharge. Still it did not appear to exert any influence on the uterus itself, its force being rather expended in stretching the vagina.

After a few days' trial, I accordingly removed it, and had another constructed of smaller dimensions, under the impression that if it were introduced within the os uteri and there inflated it was more likely to expand the uterine walls, and thus to replace the organ than by any mere pressure exerted from below upwards against the fundus of the womb. On October 3, this new apparatus was introduced for the first time, and though no effect was produced in the first twenty-four hours, it was reintroduced on the 4th, and allowed to remain for forty-eight hours in its position. On the 5th, the patient complained of a good deal of pain in the abdomen, though not of more than she had experienced on some former occasions; and it was with a feeling of glad surprise that, on the 6th, it was discovered that the organ had resumed its natural position.

The os uteri was widely open so as readily to admit two fingers, and its lips were much swollen, the uterine sound passed nearly three and a half inches, and the womb was now felt in its natural position by the hand placed over the pubes. The patient was kept quiet in bed, and, for the next twenty-four hours, the urine was drawn off by the catheter. On the 7th, the sound ascertained that the womb still retained its proper position. Menstruation came on on the evening of that day, and continued scantily until the 11th; and on the 13th, the sound discovered the uterus to have somewhat contracted, and now to measure scarcely three inches; and on the 18th, the patient left the hospital apparently in perfect health, and having walked about for some days without inconvenience.

Dr. West makes the following remarks on the best mode of employing the air-pessary, which may be of use to those who hereafter meet with a similar case:—

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[1] See number of this journal for July, 1858, p. 270.

"1st. Neither in this case nor in another which came under my care, some ten years ago, did any benefit appear to result from manipulation of the womb, or from any attempts with the hand to replace the organ, or to reduce its bulk. The utility of such endeavours will, I apprehend, be limited to instances of recent inversion, or to those exceptional cases in which the womb remains comparatively yielding and flaccid some weeks after the occurrence of the accident, as it appears to have done in those reported by Dr. Belcombe,[1] and Dr. Miller.[2]

"2d. Many inconveniences attend the employment of the common air-pessary, partly from the want of some fixed support to retain it in its place, and partly from the circumstance that the pressure it exerts being equal in all directions, a most painful distension of the vagina is inseparable from any attempt to exert efficient counter-pressure against the inverted womb.

"3d. This disadvantage may be easily overcome by means of a belt to fasten round the waist, the anterior half of which, made of steel, serves as a fixed point for a metallic wire, which is attached to a small wooden disk or cup that bears the pessary. The pessary itself, made of vulcanized India-rubber, and in this instance four inches long by five in circumference at its middle, was rendered comparatively inelastic at its lower half by the introduction of several layers of linen between the folds of the India-rubber, while no such material intervened to prevent the full expansion of its upper half when it was filled with air by means of the syringe through the elastic tube that was connected with it. By this means continued pressure was exercised against the fundus of the inverted uterus, without painful distension of the vagina.

"4th. I am uncertain as to the exact mode in which the replacement of the uterus is effected, and doubt whether it is due to the direct pressure of the pessary against the fundus of the uterus, so much as to the unfolding of the uterine wall by the instrument when introduced into the shallow *cul-de-sac* within the os uteri, formed by the still uninverted portion of the cervix. If this supposition be correct, one's endeavour in any future case would be, first, to introduce a small pessary within the os, in order to dilate the aperture, and to follow this up by the employment of one somewhat larger, with the view of thus unfolding the wall of the organ, rather than to force the fundus upwards by direct pressure against it."

MEDICAL JURISPRUDENCE AND TOXICOLOGY.

46. *Poisoning with Sulphocyanide of Potassium.*—Dr. SETSCHENOW, in a paper on this subject, supplies the following inferences as to the action of the sulphocyanide on animal bodies; in his experiments he used frogs as the animals to be operated on, except in one instance, when a rabbit was selected.

(*a.*) The sulphocyanide introduced into the stomach acts as a poison; causes decrease of the muscular irritability, and destroys life.

(*b.*) The sensibility of the skin in poisoning by sulphocyanide, either by introduction of the poison into the stomach by the mouth, or by injection of it under the skin, decreases more quickly than the motive power of the animal.

(*c.*) Brought into contact, in solution, with muscular structure, it does not produce direct paralysis of muscle.

(*d.*) The symptoms induced by this salt when introduced into the body, prove that the action of the poison is primarily exerted on the brain, then upon the spinal cord, and through these nerve centres on the organs of locomotion and sensation.

(*e.*) When the heart has ceased to beat, its action may be excited for a time by external irritation; but this action or irritation ceases much sooner in the heart than in the voluntary muscles in cases where the poison has been inserted under the skin. On the contrary, in cases where the poison was introduced by the mouth, the heart, even to the period of three hours after the administration, and when the animal was reactionless (*reactionslos*), may be excited to contraction. The author, therefore, infers that there is a difference between the two modes of poisoning. In most instances the heart ceases to act during the diastole, and is left full of blood.

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[1] Medical Times and Gazette, 1841, vol. vii. p. 783.

[2] Edinburgh Monthly Journal, December, 1851.

In one instance noted by Dr. Setschenow, he injected a portion of concentrated solution of the sulphocyanide into the external jugular vein of a rabbit. Death was almost momentary, with convulsions. A quarter of an hour after the operation the heart was found rigid, and the muscles of the neck and of the hinder extremities were also found rigid. In this example it was admitted by the experimentalist that by the direct action of the poison on the muscles, their paralysis and death result. In this respect, therefore, Bernard's view is admitted as correct; but Setschenow qualifies the admission by trying to prove that there is a difference between absence of irritability of muscular fibre and actual death.—*B. and F. Med.-Chirurg. Rev.*, Oct., 1859, from *Archiv fur Path. Anat. und Phys.*, von R. Virchow, Sept., 1858.

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47. *Poisoning by Cyanide of Potassium.*—Dr. A. Schauenstein, in a communication on poisoning by cyanide of potassium, gives an account of five cases of death by the cyanide. The author, who is a judicial chemist, comments upon the great increase of deaths by suicide through the agency of this poison. Thus, in Vienna, from 1851 to 1856, only two poisonings were noted, one of which was doubtful; while from August, 1857, to December, 1858, no less than five cases came under the personal observation of the author. In proportion to this increase of deaths from the cyanide there was a corresponding decrease of deaths from arsenic.

Dr. Schauenstein relates at length three of the cases observed, and in brief the pathology of the two others. In all cases the death seems to have been sudden. In one case, in a young girl, strong tetanic spasms came on directly after the poison had been taken, and death took place in less than an hour. In the second case, occurring in a young man, death took place almost instantly, and with no striking symptoms. The third case was similar; no note of the symptoms in the remaining two cases is given, but Dr. Schauenstein observes, that in several of the cases death took place suddenly, as in apoplexy.

In all the cases a post-mortem examination was conducted, but the appearances observed are considered by the author as offering nothing very characteristic. They were:—

(*a.*) The brain containing more or less blood.

(*b.*) The blood in the cavities of the heart dark, and of thick consistency.

(*c.*) The condition of the stomach various. In one case the mucous surface presented no particular colouring. In the case where life was prolonged nearly an hour the mucous membrane was slightly red, but offered no other extraordinary appearance. In another case, the death being very sudden, the mucous membrane was of a dark red colour, swollen, and in places covered with numerous bloody points; the contents of the stomach were also of blood-red colour; the two remaining cases of the five presented similar appearances in a less degree.

(*d.*) The smell of prussic acid in the stomach was very evident in four of the cases. But in one case, on account of the quantity of undigested food in the stomach, the smell remained hidden entirely.

(*e.*) The reaction of the contents of the stomach was strongly alkaline, and in every case chemical research proved without doubt the presence of prussic acid; but constantly formic acid was also found, showing that prussic acid in the stomach is transformed into formic in many cases.

[This latter fact, one of great interest, was originally pointed out by Dr. Schauenstein in the "Wochenbl. der Zeitschrift der k. k. Ges. der Aerzte, No. 3, 1857."]

Dr. Schauenstein, in commenting on the cases, opines that there are no true and distinguishing pathological indications by which the effects of the poison can be safely pronounced. He further observes that the chemical detection may become equally difficult in instances where, from the body having been dead several days, or having undergone a rapid decomposition, the poison has been decomposed.—*B. and F. Med.-Chirurg. Rev.*, Oct., 1859. from *Zeitschrift der k. k. Gesellsschaft. der Aerzte zu Wien*, No. 1, Jan. 3, 1859.

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48. *Action of Strychnine and Nicotine.*—In two papers, published in the *Proceedings of the Royal Irish Academy*, November 29, 1856, and June 28, 1858, the Rev. Professor HAUGHTON draws attention to the opposite character of the specific actions of strychnine and nicotine on the muscular system. From the well-known facts that strychnine produces tetanic contraction of the muscles, whilst nicotine is a most powerful agent, whether administered in the form of tobacco-smoke or of infusion of the leaves, in relaxing muscular action, Mr. Haughton was led to believe that these poisons might be used as antidotes to each other, and with a view of testing the truth of this conjecture he made a series of experiments. These experiments were made by introducing frogs into separate solutions of nicotine and strychnine, and into similar solutions mixed together. He arrived at the conclusion that nicotine has the action of retarding, and in certain cases of completely counteracting, the effects of strychnine. In one experiment a frog had lived for forty-seven minutes in a mixture of two solutions, of which one would have destroyed life in four minutes; the other would have produced paralysis in one minute, and destroyed life in twenty-three minutes; and yet, in the mixture, the animal lived forty-seven minutes, and afterwards for twenty-four hours. In another experiment the frog, immersed in a similar mixture of the poisons for ten minutes, ultimately recovered, the effect of the strychnine being completely obviated by the action of the nicotine. Since the announcement of Mr. Haughton's results, Dr. O'Reilly, of St. Louis, Missouri, acting upon the suggestion, has successfully treated a case of poisoning by strychnine by the administration of infusion of tobacco leaves. The patient had taken six grains of strychnia; an emetic had been administered which had produced vomiting, but notwithstanding, the usual symptoms were fully developed. Dr. O'Reilly writes: "One hour and fifteen minutes after he had taken the poison we gave him the first dose of the tobacco infusion, which he swallowed with difficulty. We continued it in tablespoonful doses at intervals of five minutes, until he had taken half the quantity infused, before we had noticed a favourable change. Then the muscles became relaxed, the spasms less severe, and the intervals between them longer; and so conscious was the patient of relief, that he constantly called for the tobacco juice when he found the paroxysm approaching. This encouraged us to persevere with the infusion, prolonging the intervals between each dose as the frequency of the spasms abated; until finally, after twelve hours, they disappeared, leaving him in a state of fearful nervous prostration, from which he recovered in a few days under a careful tonic treatment. The whole quantity of tobacco used in making the infusion was one ounce and two drachms."—*B. and F. Med.-Chirurg. Rev.*, Oct., 1859.

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49. *Arsenic, Fallacy of Sources of, in Dead Bodies.*—Dr. LOIS records the fact of his having made examinations of various specimens of brass. He discovered arsenic in ten specimens of brass, and in some specimens in large quantities. He considers this point as of importance to the medical jurist, inasmuch as various brazen ornaments—such as medals and rosaries, which are laid so frequently in coffins—may, by undergoing change in the presence of the products of decomposition, supply to the remains the poison which a chemist may be instructed to search for in the exhumations of persons who have been thought to die from poison.—*B. and F. Med.-Chirurg. Rev.*, Oct., 1859, from *Oesterr. Zeitschrift. f. pract. Heilk.*, No. xlix., 1859; and *Vierteljahrsschrift f. prakt. Heilk.*, No. xvi., 1859.

AMERICAN INTELLIGENCE.

DOMESTIC SUMMARY.

Trephining for Epilepsy and Insanity.—Dr. D. Brainard gives (*Chicago Med. Journ.*, Oct., 1859) brief notices of six cases in which he trephined for epilepsy and insanity. Though these were not related with sufficient details to be satisfactory, they are sufficiently interesting to be quoted:—

"This operation was performed on a man, thirty years of age, affected with epilepsy and some mental derangement for about four months. The point chosen was the left side of the occiput below the protuberance, the seat of a tumour which had existed for many years, and caused an absorption of the bone and a roughening of its surface. The two tables at the point of the operation were found consolidated and of an ivory hardness, and the skull of but half its natural thickness. The dura mater was vascular and adherent to the pia mater. The patient, who had been under the advice of Dr. Chambers, of Charleston, Coles County, Ill., returned home three weeks after the operation, very quiet, and much improved in his health. If kept from the exciting causes of insanity, there can be little doubt of his entire recovery.

"We have notes of five other cases in which this operation was performed for epilepsy, accompanied by more or less alteration of the mental faculties.

"The first of these was that of a young man, John Ladrigan, cut upon the head at two points by an axe in the forests of Wisconsin. One wound extended from the median line, at the junction of the coronal and sagittal sutures, to the left side three inches. The edge of the axe penetrated the substance of the brain deeply, portions of which escaped. The other cut, also on the left side, followed the line of junction of the parietal and occipital bones, and was as deep and as long as the other. At each a large piece of bone was partially separated, one edge passing upon the brain, and the other rising above the surface of the cranium.

"This man stated that he had been left as in a hopeless condition by the physicians who were called to see him, but recovered with the wounds in the condition we have mentioned, the right superior and inferior members being affected with paralysis and contraction. He was also subject to very frequent and severe paroxysms of epilepsy, which occurred sometimes daily.

"This man was operated on before the class of Rush Medical College.

"The whole of the displaced fragment of bone at the seat of the anterior wound was removed by three applications of the crown of the trephine. He recovered perfectly; had but one slight epileptic paroxysm afterwards, and gradually recovered considerable use of the members. No operation was performed on the posterior wound.

"The second case was that of a young man from Kendall County, Illinois. He received a blow above the ear, which fractured and depressed the skull without dividing the scalp. No operation was performed at the time, and he recovered, as was supposed. Six months afterwards he was seized with an epileptic fit. Three months afterwards another occurred, and then one every month. One year after the injury, we removed the depressed portion with the trephine. He recovered, and the epileptic paroxysms recurred at lengthening intervals, until, at the last notice, six months had elapsed without a return.

"The third case was that of a young man, kicked by a horse above the ear, fracture and depression being produced. Concussion and insensibility were the immediate results; after recovering from which, he remained insane, or nearly so. About four weeks after the injury, he was admitted into the wards of the so-called Mercy Hospital, where I used the trephine. Removing the depressed portions of bone gave immediate relief.

"The fourth case was a man of fifty years, who, eleven years previously, had a fracture with depression in the temporal region. This gave rise for several years to no perceptible inconvenience. At length he began to be affected with giddiness and loss of consciousness, which, by degrees, became more frequent, until the severer forms of epilepsy were developed. The mind was also affected by dementia to a degree which disqualified him for business. Removing the depressed pieces of bone gave great relief, and one year after the operation he was steadily improving.

"The fifth case was not so favourable. A lad, about sixteen years old, came for advice in regard to severe epileptic attacks which had continued for several years. His friends stated that when an infant he had received a blow on the left superior part of the os frontis. On examining this part of the head, a depression was perceived, which, however, was soft and easily compressible. Although no bony surface could be felt at this point, yet the statement of friends of the patient that the blow had produced a depression, induced me to apply the trephine upon its margin. It was found, however, that the bone at that point was entirely absorbed; that surrounding it was in a condition of hypertrophy, very spongy and vascular, and three times its natural thickness. The soft parts presented this appearance in the point where the bone was deficient of venous erectile tissue.

"In this case no benefit appeared to result from the operation.

"From the four preceding, the inference is, I think, deducible, that leaving depressed pieces of cranium when there is neither wound of the scalp nor symptoms of compression of the brain, as is advised by most surgical writers, is attended by dangers not usually suspected, and that it is better, in all such cases, to raise up the depressed portions at once."

Vesico-Vaginal Fistula of Four Weeks' Standing.—Dr. E. P. Smith, one of the Attending Surgeons of the Buffalo Hospital of the Sisters of Charity, records (*New York Monthly Review of Med. and Surg. Science*, August, 1859) the following case of vesico-vaginal fistula, successfully operated on by Dr. Sims' method:—

"Mrs. C., æt. 40, twice married, and has had ten children. With her last, was in labour forty-eight hours, brow presentation; head arrested and impacted. Ineffectual means were resorted to to change the position of the head; and perforation and extraction were had recourse to as a last resort. The delivery was effected March 12, 1859. Slight symptoms of hysteritis supervened, but yielded promptly to the usual remedies. Retention of urine existed for nearly a week, and the catheter was used daily. About ten days subsequent to the delivery of the fœtus, a detached slough of considerable size appeared, protruding through the vulva, and on being removed, was followed by a continuous flowing of urine, from the vagina. She entered the Buffalo Hospital of the Sisters of Charity, about the 1st of April, as a private patient. On making an examination, a vesico-vaginal fistula was at once detected, of about one inch in diameter, occupying the *bas fond* of the bladder, and situated about three and one-half inches from the vulva. The patient's general health is tolerably good, although she suffers greatly from the excoriated condition of the thighs and nates; she has also a large external hæmorrhoid. On April 21, 1859, I performed the operation so ably described by Dr. Marion Sims, in the *American Journal of Medical Sciences* for the month of January, 1852. The operation was somewhat tedious, and some slight trouble was experienced from the twisting of the silver wire used with the clamps, owing to its not being properly annealed. Three sutures were used, and the lead clamps were nearly two inches in length. The hemorrhage was trifling, and the patient complained but little during the operation. The self-sustaining catheter of Dr. Sims was then introduced, and the patient placed in bed.

"May 1st, I removed the clamps from the vagina, but continued the use of the catheter. During the ten days that have elapsed since the operation, she has been very comfortable, and, beyond a tympanitic condition of the bowels, which was relieved by injections, she has had no untoward symptoms whatever. About one week subsequent to the removal of the clamps, she left the hospital entirely well, being able to retain her urine as well as ever.

"June 25, 1859. She is now living with her husband, in the enjoyment of perfect health. In closing the report of this case, I cannot speak too highly of the instruments employed by Dr. Sims in this operation, than which nothing can be more simple and effectual; also of the position of the patient, and the use of the wide-guttered speculum, rendering an operation before so difficult of performance, one of the most easily executed in surgery."

Counter-Extension with Adhesive Plaster.—Dr. J. McF. Gaston, of Columbia, S. C., relates (*Charleston Med. Journal*, Sept., 1859) two interesting cases of fracture—one a comminuted fracture of the lower third of the femur, and the other a transverse fracture of the patella—successfully treated with adhesive plaster:—

Case I. "Rufus, a servant of Mr. John Davis, was placed under our care on June 16th, and upon a special examination with my partner, Dr. A. N. Talley, a comminuted fracture of the lower third of the shaft of the femur was discovered. With the assistance of two of our students, extension was effected, and after coaptation of the fragments, the roller bandage was applied to the entire limb. Three splints were next fitted to the thigh, and Welch's long extension apparatus was then adjusted by a gaiter, to secure the ankle to the foot-board beneath, and a silk handkerchief, wrapped around a roll of cotton as a perineal bandage, tied firmly to the upper end of the long splint above the crest of the ileum. By means of a screw connected with the apparatus, extension was now made, until the measurement from the anterior spinous process of the ileum to the internal malleolus was found to correspond to that of the sound limb.

"The muscular development of the thigh afforded great resistance, yet the extension was steadily maintained for a week, when there was such excoriation from the perineal bandage as to induce a discontinuance of this mode of counter-extension for the application of adhesive plaster, on the principle, but not precisely in the place, suggested by Dr. Gilbert, of Philadelphia.

"A strip of strong linen plaster, two inches wide, and two feet in length, was doubled upon itself at an angle, so as to make a loop, and yet both of the extremities having their adhering surfaces in the same direction. One of the free ends was pasted closely over the spinous process of the ileum, and extended down towards the inguinal region; while the other end was carried down and pasted over the trochanter, so that both pieces had firm attachments, by the *closeness* of the *integument* to *these bony prominences*, and thus presented resistance to traction upon the loop above. Transverse strips were placed from one piece to the other to secure their adhesion. A piece of homespun was now passed through this loop and made fast to the upper end of the long splint, thus effecting counter-extension. When the apparatus was tightened by the screw it was found that all the indications were met satisfactorily, while the excoriated hip and the perineum were left entirely free for such applications as the ulceration required. The strips adhered closely for three weeks without interference, and have proven an efficient means of counter-extension.

"Those who may be interested in this subject will find a well written article on the adaptation of adhesive plasters to counter-extension, by Dr. D. Gilbert, in the April number for this year of the *American Journal of Medical Sciences*, in which he details his mode of application and the principles involved in their use; while other articles from his pen may be found in the numbers for January of 1851 and 1858, in the same journal.

"The only particular in which my proceeding is entitled to any superiority over the process of Dr. Gilbert is, that it makes the attachment of the strips extend over the firm, unyielding points of bone, and thus serve, perhaps, to give a more fixed resistance to the force of extension. But while this is original with me, I prefer no claim which shall lessen the appreciation of the eminent service which has been rendered to the profession by the elaborate articles above referred to, and I trust that all may profit by their perusal, and cease to punish the subject of fracture with the excoriations of a perineal bandage."

Case II. "Being called on February 7th, of this year, to a servant of Mr. Robert Bryce, Dr. Talley and I went together, and found a transverse fracture of the patella, with the upper fragment drawn up considerably by the contraction of the muscles. Bringing the fragments in apposition, a figure of eight bandage was first applied, but subsequently, at the suggestion of my brother, Dr. J. B. Gaston, of Montgomery, Alabama, we resorted to the use of adhesive strips, to keep the fragments in apposition. Three pieces of plaster, an inch wide and twelve inches long, were carried from above the knee round the inner side of the patella to the upper and inner part of the leg; while three other similar pieces were carried from above the knee around the outer side of the patella to the upper and outer portions of the leg, thus keeping down the upper fragment of bone securely. Another set of strips were attached in a semi-circular arrangement around the lower fragment, by which accurate apposition of the fragments was effectually maintained. This plan of treatment is attributed to Dr. Neill, and Erichsen makes reference to it in his work on Surgery. Our case progressed favourably, and though the union is not osseous, the connecting layer of cartilage is perhaps shorter and firmer than is usual in this accident, and does not interfere at all with locomotion.

"In a fracture of a similar kind, which I treated some years ago, the case was managed throughout by the figure of eight bandages, with a good result as to the union of the fragments; but I had to keep the entire leg and thigh encircled with a roller—the latter to control the action of the muscles, and the former to suppress the swelling which would have ensued from the obstruction to blood-vessels and absorbents at the knee. This difficulty is entirely obviated in using the adhesive plaster, as it extends only partially around the limb, and leaving that region free where most of the vessels are located. And the same views hold in reference to their application to the upper and outer part of the thigh, instead of extending round the inner part, where the vessels and nerves are located."

New Method of Reducing Strangulated Hernia.—Dr. B. F. RICHARDSON, being called to a case of inguinal hernia, which resisted the usual methods of reduction, he was induced to adopt a new method.

"Reflecting," he says, "upon the mechanism in the *production* of hernia, I determined upon an expedient directly in opposition to the leading injunction of authorities. The patient was put upon his elbows and knees. Grasping the hernial tumour between my fingers and thumb, I pushed it steadily and firmly towards the inguinal ring; *he being at the same time directed to take a full inspiration and then make a strong and continuous expulsive effort, so as to distend the abdominal muscles as much as possible.* Between as well as during the expulsive efforts, the tumour was steadily pressed towards the ring. The reduction took place at the *second* effort. The time occupied was not over two minutes."

The *rationale* of the expedient he explains as follows:—

"The most usual cause of hernia is diaphragmatic pressure, induced through lifting, jumping, coughing, sneezing, blowing upon wind instruments, etc. Through the medium of the abdominal viscera the muscular parietes are distended and the apertures thereby enlarged, permitting the passage of intestine or omentum. The diaphragmatic force being diffused over the intra-abdominal surface, is easily antagonized by pressure at any particular point; and when attempting reduction by the manner proposed the diaphragmatic force should be more than counterbalanced, and the patient enjoined to permit the abdominal muscles to distend without restraint. Theoretically considered and practically confirmed, the conviction is irresistible, that this mode of management will reduce any abdominal hernia that is reducible without a surgical operation."—*Cincinnati Lancet and Observer*, Nov., 1859.

Yellow Fever in New Orleans—its domestic origin.—We extract from an editorial in the New Orleans *Med. News and Hospital Gaz.* (Dec. 1859), the following remarks on this subject:—

"If there has heretofore been any doubt in the public mind as to the origin of yellow fever in our midst, it seems to us that the consideration of a very few of the facts connected with its late appearance must set every doubt at rest. While we have never uttered a syllable against the existing quarantine below our city—being, indeed, anxious to see the experiment thoroughly tested—we have never been able to bring our mind to the conclusion that yellow fever never originates here, but is absolutely imported. We have always thought that we observed facts enough to satisfy any unbiased mind of the capability of our city to originate the disease—indeed we have calmly looked upon what we were obliged to admit was its origin in our midst; yet we have carefully avoided entering into mixed controversies on the subject, believing that facts alone should be recorded as evidence. For the present season, then, we propose to place before the readers of our Journal, a very few facts—more than willing that each one should draw therefrom his own deductions.

First—We call attention to the fact, that the first death by yellow fever, reported to the Board of Health this season, occurred on the 29th of September. This man came down the river from Vicksburg, and a note on the Board of Health report says that he was sick when he arrived. From all we can learn by personal inquiry, we entertain no doubt of the case having been yellow fever, but we give New Orleans the benefit of his having been sick when he arrived, and pass on to the case of Joseph Cooper, which, as will be seen, is entitled to precedence after all.

Dr. Hart, City Physician, has kindly furnished us with the data of this case, as follows:—

Joseph Cooper, native of Pittsburg, aged 17 years, arrived in New Orleans, from Pittsburg, on the 10th of September, on the steamer Camden. Having no means of procuring lodging, he was forced to sleep among the cotton bales on the levee the first night of his arrival. Early next morning he was found there by the police, and was carried to the "lock-up." That day (the day after his arrival) he was brought before the Recorder, and was sent to the workhouse as a vagrant. A day or two after he was seized with a chill, followed by high fever, and on the following day his symptoms were those of yellow fever. On the sixth day after his admission into the workhouse, he died with black vomit—the case presenting all the characteristics of genuine yellow fever. Dr. Hart has practised in this city a great number of years, and his acquaintance with this disease is too intimate to allow us to doubt his diagnosis. He gives us, too, the following account of other cases:—

Stephen Price, wife, two daughters, and one son, arrived from Cincinnati on the 25th of September. Some days thereafter, the eldest daughter was taken sick, and the following day the other daughter was taken. A priest, who was called in, gave them some patent pills. The next day Dr. Hart was called in, and lying on an old bed were the mother and two daughters, with clearly defined yellow fever. He commenced a course of simple treatment, but in a day or two he found they were all suffering so much for proper attention, that he advised the removal of the children to the hospital. The mother had the disease severely, but recovered sufficiently to sit up again. A few days after Dr. H. ceased visiting this woman, we were called one morning in a great hurry to see a patient said to be dying. On our arrival we found the woman dead. She had aborted a four months fœtus about three or four hours previously, and sank under the consequent hemorrhage. From the husband we now learned that this was Dr. Hart's case, and he also told us that one of his daughters had died at the hospital, and that the other was expected to die. This woman and family had gone from the steamboat on which they arrived, to the boarding-house of Duffy, on Girod Street, about midway between Tchoupitoulas and Levee, and here the mother and children were taken sick. This boarding-house is located in a true yellow fever region, according to all experience here. Certainly there is filth and impure air enough to originate any and all diseases.

We now give the notes of the first case that came under our own observation:—

"Mrs. M., young married woman—native of the Lake Shore, Mississippi—living on the New Basin, sent for us on the 14th of October. We found that she had been sick three days, and we have never in our life seen a more thoroughly marked case of yellow fever. We attended her during nine or ten days, and she had every grave symptom except black vomit. Her recovery was complete, but really unexpected. The patient had spent her first summer here, and had been remarkably careful in her habits. She had been down into the city shopping a few times during the summer, and went to church on Sundays, but spent far the greater part of her time in her room, sewing. She had been in contact with no shipping, and there were no other cases of fever in the neighbourhood.

"If the cases detailed did not take the fever as the result of causes originating here in our midst, will some sceptic furnish us the source whence they did derive it?"

Case of Abscess succeeding Childbirth.—Dr. Thos. B. Harvey relates (*Transactions of the Indiana State Medical Society*, May 17, 1859) the following interesting case of this: A woman, 23 years old, after a natural but protracted and very severe labour, gave birth to her second child, May 12, 1858. In consequence of its adhesion, the placenta was artificially delivered. On the third day after delivery, the patient took a dose of sulphate of magnesia, upon the operation of which, in the evening, she was suddenly attacked with pain, which was found to arise from a prolapse of the uterus; it ceased immediately upon the replacement of the organ.

May 23, eleven days after delivery, the patient experienced pain in the left groin, extending thence down the inside of the thigh to the foot. Lochia arrested, tongue furred, skin hot, but perspiring. She was ordered calomel and Dover's powder, 10 grs. of each, followed, at the end of four hours, by a dose of sulphate of magnesia; a lotion of olive oil and laudanum to the affected limb, which was afterwards to be enveloped in cloths wet with hot vinegar. On the next day the pain in the groin and limb was relieved. The bowels had been moved; profuse perspiration; pulse 100. Fomentations to leg continued, drachm doses of sulphate of magnesia directed night and morning, with tincture of the veratrum viride.

On the 1st of June, symptoms of crural phlebitis relieved; tongue clean, appetite good; lochia resumed. All treatment, excepting a bandage to the leg, abandoned. Four days later the patient began to complain of a lancinating, but not continued, pain in the region of the left ovary, where a tumour could be felt, extending, just above the pubes, to the linea alba. It was about two inches in diameter, very hard, and although movable, it was apparently attached to the left ilium. Tongue furred, pulse 110, surface hot and bathed in perspiration, lochia entirely arrested. Stimulating liniments, and fomentations with hot vinegar, were applied locally, and pills of calomel, extracts of aconite and hyoscyamus, each one grain, with five drops of tincture of veratrum viride, given internally. This treatment was continued until the mouth became slightly affected, when the calomel was omitted.

June 23. The tumor had steadily increased in size, and now extended from the crest of the left ilium to the centre of the right hypogastric region, and to within an inch and a half of the umbilicus, the abdomen presenting an appearance similar to that of the fifth or sixth month of pregnancy. The tumour appears to be firmly attached to the left ilium, but at other parts is movable, allowing the finger to be passed under its right edge. A blister was applied over the tumour.

26th. The blistered surface freely suppurating—pain still experienced—tumour increasing in size; patient restless; pulse quick and feeble. The bowels heretofore were kept sufficiently open by small doses of salts, but have now to be assisted, on account of the pressure of the tumour upon the rectum, by occasional injections. Very little difficulty experienced in urination; urine normal in quantity. A rough, hard substance, similar to the knuckle of the partially closed hand, was felt on examining the tumour from the vagina. A mucous discharge takes place from the vagina whenever the patient is upon the chamber-vessel. Injections of warm water into the vagina were directed, to keep the parts clean, allay suffering, and favour the discharge of the tumour through the vaginal parietes.

July 2. No change in symptoms; blistered surface nearly well. The tumour distinctly pointing about an inch and a half above the pubic arch. Redness of the integuments at this part, to the extent of an inch and a half in diameter, indicates an attachment to that extent between these and the walls of the abscess. In consultation with Dr. R. C. Moore, it was decided to continue the same treatment, and watch the further progress of the case. On the next day, the pointing had taken a direction internally and upwards towards the umbilicus. Patient experienced very little rest, and had become quite feeble, the tumor presenting almost externally through the vagina, but at this part still hard; fluctuation very perceptible. Fearing that the internal wall of the abscess would yield to the pressure of its contents, and allow these to be discharged into the abdomen, an incision was made through the abdominal integuments, to the left of the median line, and an inch and a half above the pubic arch, into the abscess; a copious discharge of purulent matter followed, to the great relief of the patient. The discharge continued, more or less, for about two weeks; a hard, flat surface remained, which was gradually absorbed under the use of iodine. The patient was placed under a tonic and restorative treatment; she recovered rapidly, and is now (May 17, 1859) nursing a large, healthy child.

CHARLESTON PREPARATORY MEDICAL SCHOOL.

The Ninth Session of this School will begin at the Medical College of South Carolina, on the first Monday in April, 1860, and terminate on the 15th of July. The different Chairs will be occupied as follows:—

Institutes and Practice of Medicine,	D. J. Cain, M. D.
Materia Medica and Therapeutics,	F. Peyre Porcher, M. D.
Obstetrics and Diseases of Women and Children,	S. L. Lockwood, M. D.
Principles and Practice of Surgery,	Samuel Logan, M. D.
Physiology,	J. Dickson Bruns, M. D.
Anatomy,	P. Gervais Robinson, M. D.

Clinical Instruction will be given at the Marine and Roper Hospitals. of which Drs. Porcher and Cain are Physicians. Drs. Lockwood and Bruns are respectively Physicians of the Poor for the Western and Eastern Divisions.

Among the patients of the Teachers, the students will have access to all cases to which they can with propriety be admitted.

When possible, Obstetrical cases will be shown to the students, by which means they will become acquainted with the practical details so essential to the successful management of such cases.

A complete Course on Operative Surgery will be delivered before the Class, and students will have an opportunity of performing the various operations upon the subject.

Recapitulations and examinations constitute an important feature in the course.

They beg leave to state also, that each department is illustrated by preparations, models, specimens, colored engravings, &c., to which additions are made from time to time, as the success of the School fully warrants. In short, every opportunity will be afforded for acquiring practical as well as theoretical knowledge of the profession. It may be added that the classes have steadily increased in numbers since the first establishment of the School.

Further particulars may be obtained by applying to any of the Teachers.

Students should have no fear of spending the early summer months in Charleston, as the city is remarkably healthy except when yellow fever prevails, which never commences before August or September.

Price of the Course, $50.

F. P. PORCHER, M. D., *Sec. and Treas.*

LONG ISLAND COLLEGE HOSPITAL, AT BROOKLYN, N. Y.

The first Course of Lectures in this Institution will commence on Thursday, March 29, 1860, and continue sixteen weeks.

BOARD OF REGENTS.

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COUNCIL.

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Dewitt C. Enos, M. D., Prof. of General and Descriptive Anatomy.
Edwin N. Chapman, M. D., Prof. of Materia Medica and Therapeutics.
J. G. Johnson, M. D., Demonstrator of Anatomy.

The opportunities for *Clinical Instruction* are equal to those furnished by any College in the Union. *College Cliniques* will be held regularly throughout the session. Nearly

10,000 medical and surgical cases have been prescribed for at the College Hospital (which is under the same roof with the Lecture-Rooms) during the last eighteen months. Students can also enjoy the clinical advantages afforded by the several large Hospitals and Dispensaries of this City and the City of New York. Dissecting material is abundant. The subjects will be so *prepared*, that Practical Anatomy may be studied as well as at any other season of the year.

FEES.—For the whole Course, including Matriculation and Hospital tickets,	$100
Graduation	20
Dissecting ticket	5

N. B. Good board can be had for from $3 to $5 per week. Further information may be obtained by addressing any member of the *Council* or *Faculty*.

BROOKLYN, N. Y., *Dec.* 24, 1859.

HARVARD UNIVERSITY.

SUMMER SESSION OF THE MEDICAL DEPARTMENT.

THE Annual Course of Summer Instruction in the Medical Department of Harvard University will commence at the Massachusetts Medical College, in North Grove Street, Boston, on Monday, March 12, 1860, and continue till November.

Clinical Medical and Surgical Instruction will be given at the Massachusetts General Hospital, adjoining the College.

Recitations from approved text-books will be held daily during the session at the College, upon all branches necessary to a medical education. Occasional lectures are also given, and demonstrations, illustrated by the Museums of the College.

During the Summer Session, instruction is given by lectures at Cambridge, on Botany, by Prof. Gray; on Comparative Anatomy, by Prof. Wyman; on Zoology, by Prof. Agassiz; on Acoustics and Optics, by Prof. Lovering. To these lectures Students of the Summer Session will be admitted without extra charge.

Good Board can be obtained at $3 or $4 per week.

Fees for the Summer Term (which must be paid in advance) $100, without extra charge for Matriculation, Hospital, Library, or Dissections; for six months, $100; for three months, $50.

D. HUMPHREYS STORER, M. D.,	Professor of Obstetrics and Medical Jurisprudence.
JOHN B. S. JACKSON, M. D.,	Professor of Morbid Anatomy.
HENRY I. BOWDITCH, M. D.,	Professor of Clinical Medicine.
OLIVER W. HOLMES, M. D.,	Professor of Anatomy and Physiology.
GEORGE C. SHATTUCK, M. D.,	Hersey Professor of Theory and Practice of Medicine.
HENRY J. BIGELOW, M. D.,	Professor of Surgery and Clinical Surgery.
JOHN BACON, M. D.,	Professor of Chemistry.
EDWARD H. CLARKE, M. D.,	Professor of Materia Medica.

RICHARD M. HODGES, M. D., Demonstrator and Assistant in Surgery.

WM. E. COALE, M. D.,	Assistant in Theory and Practice.
CALVIN ELLIS, M. D.,	Assistant in Morbid Anatomy.
JAMES C. WHITE, M. D.,	Assistant in Chemistry.
J. NELSON BORLAND, M. D.,	Assistant in Clinical Medicine.

Tickets to the Session must be procured before Students will be admitted to the Course.

D. HUMPHREYS STORER, Dean of the Faculty,
No. 132 *Tremont Street, Boston.*

*** Circulars can be obtained gratis, upon application to David Clapp, Medical and Surgical Journal Office, over 184 Washington Street, Boston.

Jan., April—2t. January 1, 1860.

TO READERS AND CORRESPONDENTS.

The following works have been received:—

The Anatomy of the Human Lung: an essay for which was awarded the Fothergillian Gold Medal of the Medical Society of London. By A. T. Houghton Waters, M. R. C. P. L., Lecturer on Anatomy, Phys., and Path. in the Liverpool Royal Infirmary School of Medicine, &c. London: John Churchill, 1860. (From the Author.)

On the Intimate Structure and the Distribution of the Bloodvessels of the Human Lung. By A. T. H. Waters, M. R. C. P. (From the Proceedings of the Royal Society for May 26, 1859.) London. (From the Author.)

Stricture of the Urethra: Its Complications and Effects; A Practical Treatise on the Nature and Treatment of those Affections. By Robert Wade, F. R. C. S., &c. &c. Fourth edition (with engravings), considerably enlarged. London: John Churchill, 1860. (From the Author.)

A Manual of Anæsthetics: Theoretical and Practical. By Charles Kidd, M. D. New edition. London, 1859. (From the Author.)

Acupressure: A New Method of Arresting Surgical Hemorrhage. By J. Y. Simpson, M. D., F. R. S. E., &c. &c. (From the Author.)

On the Coagulation of the Blood in the Venous System during Life: A Thesis for a Medical Act in the University of Cambridge. By Geo. Murray Humphry, M. D., F. R. S., &c. Cambridge, 1859. (From the Author.)

The Action and Sounds of the Heart: A Physiological Essay. By George Britton Halford, M. D., M. R. C. P., London; Lecturer on Anat. at the Grosvenor Place School of Med. London, 1860.

On Excision of the Knee-Joint, illustrating the principal complications which are likely to arise after the performance of that operation, and especially the want of subsequent development and growth in the limb of the young subject. By Oliver Pemberton, Surg. to the Gen. Hosp., and Lecturer on Surg. Path. at Sydenham College, Birmingham. London, 1859. (From the Author.)

Case of Paralysis as to Voluntary Motor Power of the Limbs on one Side of the Body, attended by Hyperæsthesia as regards the Impressions of Pinching and Pricking on the corresponding side of the Face; being the result of compression of certain lateral parts of the Brain from an Intra-Cranial Aneurism: with Observations on "Induced" Cerebral Paralysis. By John W. Ogle, M. D., Asst. Phys. to St. George's Hospital. London, 1859. (From the Author.)

Cases brought before the notice of the Pathological Society of London. By John W. Ogle, M. D. (From the Author.)

Series of Clinical Cases (with observations), illustrating the view recently put forward by Dr. Brown-Séquard, as regards certain points connected with the Physiology of the Nervous System. By John W. Ogle, M. D. (From the Author.)

The Diaphemetric Compass, an Instrument for measuring the degree of discriminating power, as regards tactile impressions, enjoyed by the Skin and Mucous Membranes in certain affections of the Nervous System. By John W. Ogle, M. D., &c. (From the Author.)

Third Report of the Commissioners of Her Majesty's Customs on the Customs, presented to both Houses of Parliament by command of Her Majesty. London, 1859. (From J. O. McWilliam, M D.)

Description of a Simple Instrument for Inflating the Lungs of Infants born in an Asphyxiated State, with Remarks. By J. G. Wilson, M. D., F. R. C. S. E., &c. &c. Glasgow, 1859. (From the Author.)

Preventive Medicine: Statistics of Smallpox and Vaccination in the United Kingdom, and the necessity for a better System of Vaccination in Ireland. Read at the meeting of the British Association. By Wm. Moore, A. B., M. B., &c. Dublin, 1859. (From the Author.)

De l'Hématocèle retro-uterine et des épanchements sanguins non enkystes de la cavité péritonéale du petit bassin, consedérés comme accidents de la menstruation. Par le Docteur Auguste Voisin, Ancien Interne des Hôpitaux de Paris, &c., avec une Planche. Paris, 1860.

A Practical Treatise on Fractures and Dislocations. By Frank Hastings Hamilton, M. D., Prof. of Surgery in the University of Buffalo, &c. &c. Illustrated with 289 wood-cuts. Philadelphia: Blanchard & Lea, 1860. (From the Publishers.)

Therapeutics and Materia Medica: A Systematic Treatise on the Action and Uses of Medicinal Agents, including their Description and History. By Alfred Stillé, M. D., late Prof. of the Theory and Pract. of Med. in Med. Depart. of Penn'a College, &c. &c. 2 vols. Philada.: Blanchard & Lea, 1860. (From the Publishers.)

Clinical Lectures on certain Acute Diseases. By Robt. Bentley Todd, M. D., F. R. S., &c. Philadelphia: Blanchard & Lea, 1860. (From the Publishers.)

Lectures on the Diseases of Infancy and Childhood. By Chas. West, M. D., Physician to Hospital for Sick Children, &c. &c. &c. Third American, from the fourth revised and enlarged London, edition. Philadelphia: Blanchard & Lea, 1860. (From the Publishers.)

A Familiar Forensic View of Man and Law. By Robert B. Warden. Columbus, 1860.

Clinical Lectures on the Principles and Practice of Medicine. By John Hughes Bennett, M. D., Prof. Inst. Med. and Prof. Clin. Med. in University of Edinburgh. From the last Edinburgh edition. With 500 illustrations on wood. New York: Samuel S. & Wm. Wood, 1860. (From the Publishers.)

A Guide to the Practical Study of Diseases of the Eye: with an Outline of their Medical and Operative Treatment. By James Dixon, F. R. C. S., Surgeon to the Royal London Ophthalmic Hospital, Moorfields, &c. From the second London edition. Philadelphia: Lindsay & Blakiston, 1860. (From the Publishers.)

A Medico-Legal Treatise on Malpractice, comprising the Elements of Medical Jurisprudence. By John J. Elwell, M. D., Member of the Cleveland Bar. New York: John S. Voorhies, 1860.

A Treatise on Medical Electricity, Theoretical and Practical. By J. Althaus, M. D. Philadelphia: Lindsay & Blakiston, 1860. (From the Publishers.)

Nature and Art in Disease: illustrated by various Discourses and Essays, to which are added Miscellaneous Writings. By Jacob Bigelow, M. D., &c. &c. &c. Second edition, enlarged. New York: S. S. & W. Wood, 1860. (From the Publishers.)

Brief Expositions of Rational Medicine. By Jacob Bigelow, M. D., &c. &c. Second edition. New York: S. S. & W. Wood, 1860. (From the Publishers.)

Proceedings of the Academy of Natural Sciences of Philadelphia. December, 1859, January, February, 1860.

The Transactions of the New York Academy of Medicine, Vol. II., Part IV., containing Remarks upon Chylous or Milky Urine. By C. E. Isaacs, M. D. New York, 1859. (From the Author.)

Transactions of the New Hampshire Medical Society, 69th Anniversary, held at Concord, May 31st and June 10th, 1859. Manchester, 1859.

Proceedings of the American Pharmaceutical Association, at the Eighth Annual Meeting, held in Boston, Mass., September, 1859. With the Constitution and Roll of Members. Boston, 1859.

Selections from a Report on Ovariotomy; read before the Kentucky State Medical Society, at its Annual Meeting, at Louisville, April, 1857. By J. Taylor Bradford, M. D. Augusta, Ky., 1859. (From the Author.)

On Criminal Abortion in America. By Horatio R. Storer, M.D., of Boston. Philadelphia, 1860. (From the Author.)

Observations on some of the Physical, Chemical, Physiological, and Pathological Phenomena of Malarial Fever. By Jos. Jones, M. D., Prof. Med. Chem. in Med. College of Georgia. Philadelphia, 1859. (From the Author.)

Contributions to Operative Surgery and Surgical Pathology. By J. M. Carnochan, Prof. Surg. in New York Med. College. With illustrations drawn from nature. Philadelphia: Lindsay & Blakiston, 1860. Part 3.

Description of a Deformed, Fragmentary Human Skull, found in an Ancient Quarry-Cave at Jerusalem: with an attempt to determine, by its configuration alone, the ethnical type to which it belongs. By J. Aitken Meigs, M. D., Prof. Inst. Med. in Med. Dep. Penna. College. Philada., 1859. (From the Author.)

Monograph on the Pathology of the Pituitary Body. By Middleton Michel, M. D. Charleston, 1860. (From the Author.)

Annual Report of the Managers of the Western Pennsylvania Hospital for 1859. Pittsburg, 1860.

Report of the Board of Managers and Superintendent of the Kentucky Eastern Lunatic Asylum (at Lexington, Ky.) for the years 1858–9. Frankfort, Ky., 1859.

Twenty-First Annual Report of the Board of Trustees and Officers of the Central Ohio Lunatic Asylum, to the Governor of the State of Ohio, for the year 1859. Columbus, 1860.

Twenty-Third Annual Report of the Trustees and Superintendent of the Vermont Asylum for the Insane, August, 1859. Brattleboro, 1859.

Report of the Chairman of the Committee on Retrenchment, Inquiries presented by that Committee and the Visiting Committee to the Superintendent and the Physicians and Surgeons of the New York Hospital, with their Replies to the same. Printed by order of the Board. New York, 1860.

Report of the Superintendent of the Lunatic Asylum of the State of Texas. Printed by order of the Legislature. Austin, 1859.

Report of the Board of Managers of the Western Lunatic Asylum of the State of Kentucky for the years 1858 and 1859. Frankfort, Ky., 1859.

Thirty-Ninth Annual Report of the Surgeons of the New York Eye Infirmary for the year 1859. New York, 1860.

Annual Report of the Board of Administrators of the Insane Asylum, at Jackson. Baton Rouge, 1860.

Report of the Board of Commissioners and of the Superintendent of the Provincial Asylum of New Brunswick for the year 1859. St. Johns, N. B., 1860.

Memoir on the Salubrity of the Isle of Pines. By Dr. Don Jose de la Luz Hernandez. Habana, 1857.

A Case of Necrosis. By G. Grant, M. D. Newark, N. J., 1859.

An Epitome of Braithwaite's Retrospect of Practical Medicine and Surgery. In five Parts. By Walter S. Wells, M. D. Part I. New York: W. H. Tenson, 1860.

Scleroto-Choroiditis Posterior, with Cases and Illustrations. By Henry D. Noyes, M. D., Asst. Surg. New York Eye Infirmary. New York, 1860.

Introductory Lectures and Addresses on Medical Subjects, delivered chiefly before the Medical Classes of the University of Pennsylvania. By George B. Wood, M. D., LL. D., Pres. Am. Philos. Soc., &c. &c. &c. Philadelphia: J. B. Lippincott & Co., 1859. (From the Author.)

An Inaugural Address, introductory to the Course on Anatomy, delivered in the Medical Department of Pennsylvania College, Tuesday, October 11, 1859. By Wm. H. Gobrecht, M. D., Prof. Anat. Published by the Class. Philada., 1859. (From the Author.)

Suggestions on Medical Education: Introductory Lecture to the Course of 1859-60, in the Medical College of Georgia. By Jos. Jones, M. D., Prof. Med. Chem. and Pharm. Published by the Class. Augusta, 1860. (From the Author.)

Erysipelas: its Constitutional Origin and Treatment. The Annual Oration delivered before the Erie County Medical Society. Buffalo, January, 1860. (From the Author.)

Botany as an Ally to Medicine: a Lecture delivered to the Medical Society of the University of Nashville, December 2, 1859. By Geo. S. Blackie, M. D., &c. Nashville, 1859.

The following Journals have been received in exchange:—

Moniteur des Sciences Médicales et Pharmaceutiques. Rédigé par M. H. de Castelnau. January, February, March, 1860.

Journal de Médecine de Bordeaux. Rédigé par M. Costes. November, December, 1859, January, 1860.

Annales Médico-Psychologiques. Rédigé par les Docteurs Baillarger, Cerise, et Moreau (de Tours). October, 1859, January, 1860.

The British and Foreign Medico-Chirurgical Review. January, 1860.

The Journal of Psychological Medicine. Edited by Forbes Winslow, M. D. January, 1860.

Edinburgh Medical Journal. January, February, 1860.

The Half-Yearly Abstract of the Medical Sciences. Edited by W. H. Ranking, M. D., and C. B. Radcliffe, M. D. Vol. XXX. July—December, 1859.

The Retrospect of Medicine. By W. Braithwaite. Vol. XL. July—Dec., 1859.

The Medical Times and Gazette. January, February, March, 1860.

British Medical Journal. Edited by Andrew Wynter, M. D. January, Feb., March, 1860.

Ophthalmic Hospital Reports and Journal of the Royal London Ophthalmic Hospital. Edited by J. F. Streatfeild. October, 1859.

The Dublin Hospital Gazette. January, February, 1860.

Dublin Medical Press. Edited by Arthur Jacob, M. D. Jan., Feb., 1860.

The Glasgow Medical Journal. January, 1860.

The Dublin Quarterly Journal of Medical Science. February, 1860.

Edinburgh Veterinary Review. January, 1860.

The British American Journal. Edited by Archibald Hall, M. D. January, February, 1860.

Charleston Medical Journal and Review. Edited by J. Dickson Bruns, M. D. January, March, 1860.

The North American Medico-Chirurgical Review. Edited by S. D. Gross, M. D., T. G. Richardson, M. D., and S. W. Gross, M. D. Jan., March, 1860.

The New Orleans Medical and Surgical Journal. Edited by Bennet Dowler, M. D. January, March, 1860.

The Boston Medical and Surgical Journal. Edited by F. E. Oliver, M. D., and Calvin Ellis, M. D. January, February, March, 1860.

The New York Journal of Medicine. January, March, 1860.

The New Orleans Medical News and Hospital Gazette. Edited by D. W. Brickell, M. D., and E. D. Fenner, M. D. January, February, March. 1860.

The Virginia Medical Journal. Edited by J. B. McCaw, M. D., and J. Otis, M. D. November, December, 1859.

The Medical Journal of North Carolina. Edited by Edward Warren, M. D. January, 1860.

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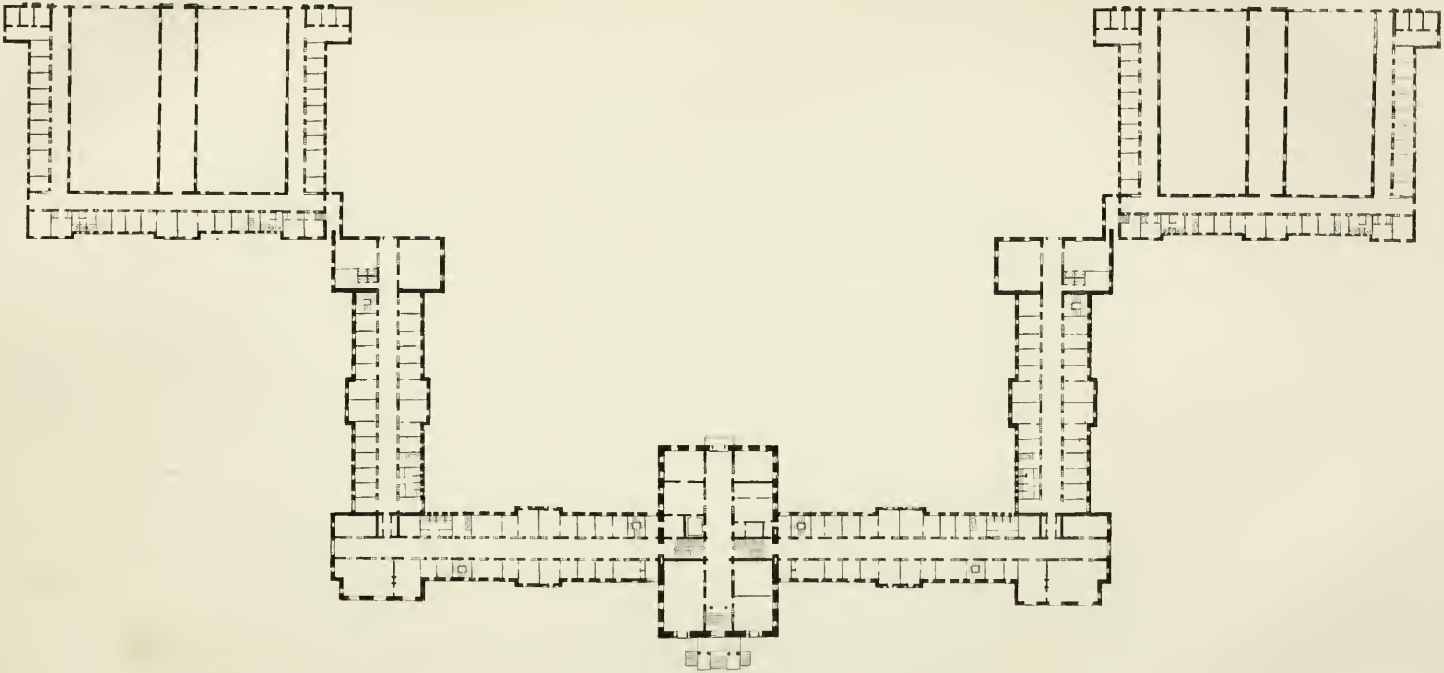

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THE

AMERICAN JOURNAL

OF THE MEDICAL SCIENCES

FOR APRIL 1860.

Art. I.—*A Brief Account of the Pennsylvania Hospital for the Insane, at Philadelphia; with a Description of its New Buildings.* By Thomas S. Kirkbride, M. D., Physician to the Institution. (With two plates.)

An entirely new building containing, with the conveniences and comforts which have been tested by experience, much that is novel in character, having been completed during the past year, and added to the accommodations previously possessed by the Pennsylvania Hospital for the Insane, a brief sketch of its history and of its present condition and arrangements can hardly fail to be interesting, not only to those who have so generously contributed to the work, but especially to the medical profession and all others who feel an interest in public institutions devoted to the relief of human suffering.

The original Pennsylvania Hospital, of which this is a branch, was established as early as the year 1751, and was the first institution in America in which special provision was made for the care and treatment of the insane. Although in its early days it received some assistance from the colonial and State governments towards the erection of the original buildings, its main dependence has always been upon the contributions of benevolent individuals. It has always had two departments, one for the sick and cases of accidental injury, and the other for the insane. That for the sick continues to occupy the original site, on the square between Spruce and Pine and Eighth and Ninth streets, in the city of Philadelphia, and is every year widely diffusing its benefits throughout the community. Into this building the insane, too, were received till the first day of the year 1841, at which date an entirely new structure, called the "Pennsylvania Hospital for the Insane," was opened for the reception of patients, and since that period no cases of insanity have been admitted into the building first referred to. This new hospital was located on a fine farm of 113 acres of land, two miles west of the river Schuylkill, between the West Chester and Haverford roads (now Market and Haverford streets), on the latter of which is its gate of entrance. The new establishment and the land on which is stands was provided entirely from the proceeds of sales of certain vacant lots surrounding the old building, which had never yielded any revenue to the hospital, and which originally had cost the institution but about $10,000. Beginning with 93 patients, received from the parent institution, the number gradually increased, till, by the year 1853, every room was occupied, and from that time forward, even with almost constantly crowded wards, it became necessary to decline many cases that sought admission to the hospital. Under these circumstances, it was obvious that new accommodations must be provided, or the institution could not maintain its high character, nor our own citizens find, within the commonwealth, adequate means for the treatment of the cases of insanity which were of such frequent occurrence. Believing that this institution possessed peculiar advantages for providing these additional accommodations, and that the experience which had here been derived from a careful study of the disease and a familiarity with the requirements of establishments for its treatment, could be made available in the erection of a new structure, it was suggested in the annual report for the year 1853, "that a new hospital, replete with every modern discovery and all the improvements suggested by a large experience, and capable of accommodating 200 male patients, should be erected on the 70 acres of land now comprising the farm of the institution, and directly west of its present inclosed pleasure grounds; while the present buildings, with everything included within its external wall, should be given up for the exclusive use of a similar number of females." These suggestions were at once approved by the Board of Managers, and subsequently with entire unanimity by the contributors at their annual meeting in the year 1854. An appeal to the public for contributions to this object was soon after issued, a collecting committee appointed, and the result of their labours has been the erection, from this source alone, of an entirely new edifice, capable of accommodating in a very superior manner 250 patients, with ample apartments for officers, attendants, and others employed, and with every arrangement which seemed likely to promote the comfort and restoration of the sick, and the efficiency, usefulness, and economical management of the institution.

The Pennsylvania Hospital for the Insane, therefore, as now constituted, consists of two distinct buildings, each complete in itself, having separate pleasure grounds and inclosures, both situated, however, on the same tract of 113 acres of land originally purchased by the institution. The hospital just completed is styled "the department for males," and that which has been in use during the last nineteen years "the department for females."

Both departments remain as heretofore under the charge of a physician in chief, having as associate officers one or more assistant physicians, a steward, and a matron in each building.

The building now known as "the department for females," and the various improvements which from year to year have been added to the original structure, have been fully described in the eighteen annual reports which have been published. The character of the repairs and alterations now in progress, and which will tend to add greatly to the cheerfulness and completeness of its arrangements and the comfort of the patients, may be referred to in detail on some future occasion. It is intended to facilitate communication between the two buildings by means of the telegraph, and one of our citizens has offered a liberal contribution towards putting a wire suspension bridge over the meadow which separates the two pleasure grounds.

From the opening of the Pennsylvania Hospital to the year 1841, when it ceased to receive cases of insanity (a period of 89 years), 4366 insane patients were admitted. Of these 1493 were cured, 913 discharged improved, 995 were removed by their friends without material improvement, 246 eloped, 610 died, 93 were transferred to the new building, and 16 retained at the date referred to.

In the nineteen years that the "Pennsylvania Hospital for the Insane" has been in operation, 3360 patients have been admitted, and of these 1656 have been discharged cured, 766 in various states of improvement, 312 as stationary, 363 died, and 254 remain under care.

The first stone of the new hospital, "the department for males," was laid on the 7th of July, 1856, and it was opened for the reception of patients on the 27th of October, 1859. It is situated in full view, and on the western side of the building previously in use, at a distance in a right line of 648 yards, and in the midst of fifty acres of pleasure grounds and gardens, the whole of which are surrounded by a substantial stone wall, covered with flagging, and of an average height of ten and a half feet. The gate of entrance is on Forty-ninth Street (an avenue intended to be 100 feet wide), between Market and Haverford streets, and by each of which, by means of horse railroads, easy access to Forty-ninth Street can be had at all seasons.

This new hospital faces the west, and consists of a centre building, with wings running north and south, making a front of 512 feet—of other wings, connected with each of those just referred to, running east a distance of 167 feet, all three stories high, and these last having at their extreme ends communications with extensive one storied buildings. All the exterior walls are of stone, stuccoed, and the interior of brick.

This arrangement gives provision for the accommodation of sixteen distinct classes of male patients in the new building, as the same number of classes of females are now provided for in that previously in use. Each one of these sixteen wards has connected with it, besides the corridors for promenading and the chambers of the patients and attendants, a parlor, a dining-room, a bath-room, a water-closet, a urinal, a sink-room, a wash-room, a drying-closet, a storeroom for brushes and buckets, a clothes-room, a dumb-waiter, a dust-flue, and a stairway passing out of doors, if desired, without communication with the other wards; and every room in the building, almost without exception, has a flue communicating with the fresh air-duct, for warm or cool air, according to the season (and hereafter to be referred to), and with the main ventilating trunks which terminate in the various ventilators on the roof of the building.

The centre building is 115 by 73 feet. It has a handsome Doric portico of granite, in front, and is surmounted by a dome of good proportions, in which are placed the iron tanks from which the whole building is supplied with water. The lantern on the dome is 119 feet from the pavement, and from it is a beautiful panoramic view of the fertile and highly improved surrounding country, the Delaware and Schuylkill rivers, and the city of Philadelphia, with its many prominent objects of interest. In the basement or first story of the centre building is the main kitchen, 42 by 24 feet, in which are improved arrangements for cooking: a scullery, 24 by 11; two storerooms, each about 20 by 22 feet; a trunk-room, 24 by 11 feet; a general clothes-room, a bread-room, a dining-room for the officers, another for the domestics, a lodging-room for the seamstress, another for the supervisor of the basement, a stairway to the main story, and a dumb-waiter leading from the kitchen to the cellar, and another to the upper rooms of the centre building. The cellars under the centre building, besides containing the hot air-chambers for that division of the house, have three distinct rooms for storage, which are ventilated by means of flues leading out through the roof of the house. In front of the basement, and under the steps and adjoining roadway, are the vaults for coal for the kitchen and bakeroom, and the ice-house, the latter being ventilated as mentioned for the cellars, and carts unload into both, through openings in the blue stone flagging, which forms the roadway upon the arches below. Adjoining the ice-house is a small apartment, with stone shelves for keeping food cool in summer; and along side of the coal-vault is a space for the offal from the kitchen. There is also a small kitchen near the scullery, and intended for the superintendent's family, whenever it is required for the purpose. In one of the storerooms is a dark apartment, and in another the tanks for the oxygen and hydrogen gases used for the dissolving apparatus.

On the second or principal story is the lecture-room, 42 by 24 feet, in the lecturer's table of which, water, steam, and gas, for experimental purposes, have been introduced. It also contains commodious cases for apparatus, a black board running on a track behind the cases, and a smooth surface, 24 by 18 feet, at its eastern end, on which the dissolving views are shown. On the opposite side of the main corridor is a reception room for visitors, and a room for visits to patients by their friends, each being 24 by 23 feet. There are also on this floor two small rooms for more private visits, the medical office and library, which is also the assistant physician's office, 24 by 14 feet, with a small storeroom, containing a sink, &c., adjoining; the lodging-room for the assistant physician having charge of the medical office, with which it communicates; a general business office, which is also that of the steward, 24 by 20 feet; a manager's room, 24 by 19 feet, which is also the principal physician's private office; a parlor, 24 by 19 feet, for the use of the officers of the house; and a fire-proof, 11 by 9 feet, in connection with the general business office. In the third story front are four fine rooms, each 24 by 21 feet; a corridor, 42 by 16 feet, shut off from the adjoining portion by a ground glass partition; a bath-room, water-closet, and clothes-closets, intended at some future day for the use of the family of the superintending physician, whenever such an officer may be specially connected with that department. There are also on this floor chambers for the steward and matron, for the senior assistant physician, three others that may be used as deemed expedient, and a room, 24 by 11 feet, lighted from the roof, and intended for a general storeroom for the bedding and other dry goods not actually in use.

The corridors of the centre building, running east and west, are sixteen feet wide; those running north and south, in which are the stairways, lighted from the roof, are twelve feet wide.

The height of the ceiling of the basement in the centre building and of all parts of the wings and one storied buildings, except the upper story of the wings, which is one foot more, is twelve feet. The ceilings in the second or principal, and in the third story of the centre, are eighteen feet high.

The wings on each side of the centre building are almost exactly alike, except that on the south side in front, in the basement immediately adjoining the centre, is the ironing-room, 28 by 11 feet, with a drying-closet, 11 by 11 feet, attached, and in the rear the small kitchen already referred to, and the lodging-rooms of the female domestics; while on the north side, in corresponding positions, are the bake-room, the baker's store and lodging-rooms, and the lodging-rooms of the hired men, not employed in the wards. On this floor, on each side of the centre, is also a museum and reading-room, 42 by 14 feet, and accessible either from the grounds or from the inside of the building, two work-rooms for the patients, two lodging-rooms for persons employed in the work-rooms, a bath-room for the officers and another for the domestics, two water-closets, &c. The portion of the wing just described is shut off from the adjoining part (which constitutes the fifth ward) by a thick ground glass partition; this ward having in it a large room, 29 by 24 feet, with a bath-tub and water-closet in a recess; another, 24 by 14 feet; a third, 23 by 11 feet; and five rooms, 11 by 9 feet; a bath-room, drying-closet, and all the other conveniences already mentioned as forming a part of each ward. These apartments and arrangements are intended for patients who are particularly ill, and who require special quiet and seclusion, where they may be visited, if deemed expedient, by their friends, without annoyance to others, or interfering with the discipline of the house.

Besides the fifth ward, just described, and which is on the first floor, there are on each side of the centre two other stories, each of which constitutes a ward, and with all the conveniences already referred to. The rooms are arranged on both sides of the corridors, which are twelve feet wide, and have their extreme ends mostly filled with glass; while, wherever one wing joins another, there is entirely across it an open space for light and air, eight feet wide, glazed with small sash from near the floor to the ceiling; and in the middle of each ward, on one side, is a similar open space, all of which may be used for keeping flowering plants, birds, &c., for having small jets of water or any other object of interest, and which, in excited wards, may be guarded by ornamental wire-work. Each story of the return wing makes a ward, similar to those just described.

Passing from the return wings into the supervisor's office, the one storied buildings are reached. Each of these has provision for 26 patients and six attendants, and every arrangement for their comfort. The rooms are here on one side of a corridor ten feet wide, and at the end of each of those running towards the east is a cross hall, in which are three rooms intended particularly for patients who from any cause may require special seclusion. One of the main halls is used for dining, and the other as a sitting-room. Between the dining halls of these two wards (the seventh and eighth), and made private by sliding doors, are four rooms intended for excited patients, who have special attendants. Opposite these last is a room, 110 by 14 feet, with an arched ceiling 15 feet high, with skylights and windows out of reach, intended to be used as a kind of gymnasium, and accessible either from the adjacent garden and yards, or directly from the wards; and in the story below this is a room of the same size, in which are two fine bowling alleys, with reading tables, &c. Both these rooms may be well lighted with gas, and warmed by steam-pipe, so that they can be comfortably used in the evening as well as by day, and in all kinds of weather.

The arrangement of these one storied buildings makes for each two very pleasant yards, in size 110 by 54 feet, surrounded by broad brick pavements, and having grass in the centre, with an open iron palisade in front, giving a distinct though sufficiently distant view of two of the most travelled roads in the vicinity. There is also a yard, 343 by 72 feet, adjoining each sixth ward, fitted up as the others, and planted with shade trees. Brick pavements also surround the entire building, making, with those just referred to, and those in front, a continuous walk of 6,152 feet.

Entrance.—The entrance to "the department for males," as before mentioned, is from Forty-ninth Street, between Market and Haverford streets. The gatekeeper's lodge has two comfortable rooms on the north, while on the opposite side of the gateway is a dead-room, and another for tools used about the grounds. Brick paths on either side of the main roadway lead to the centre building, and the space in front, planted with evergreen and ornamental trees, and having a fountain in the central grass-plat, is 325 by 175 feet. From the front platform eight steps lead up to the vestibule, and seven steps inside of the building, to the level of the principal floor. Visitors passing into the centre building may go out upon a pleasant balcony on its eastern side, and overlook the improvements in that direction, but they cannot pass through the grounds.

Ten steps descend from the roadway to the pavement around the basement, which, except immediately at the front of the centre, where it is surrounded by a wide area, with sodded banks, is everywhere above ground.

There is also a gate on Market Street, near the engine-house, used for bringing in coal or other heavy articles, and another on the eastern side of the grounds, for the use of the officers of the hospital only.

Engine-House and Laundry.—The engine-house, 71 feet from the nearest point of the hospital building, is a substantial stone structure, 70 by 64 feet, and two stories in height. The character of the ground is such that carts drive into the second story to discharge the coal directly into the vaults below, and the level of the railroad in the cellar of the hospital brings it upon the second floor of the engine-house.

The first story, on the level of the ground on its southern and eastern side, contains vaults capable of containing near 500 tons of coal. Adjoining these vaults is the boiler-room, 30 by 17 feet, and opening into the engineer's work-room, in which will be placed lathes, grindstones, pipe cutting machines, &c., driven by the engines which are in the engine-room, 23 by 19 feet in size, and separated from the last by a glass partition; while further west, also separated by glazed windows and doors, is the fan-room and the tower for supplying fresh air to the main duct, which leads from it, through the entire building. The height of ceiling in this story is 17 feet, and it is arched over the engine-room and the engineer's work-room, so as to give a proper support to the stone floor of the room above. In the second story of this building, into which the railroad passes, is the wash-room, 27 by 24 feet; the room for assorting and folding clothes, 24 by 14 feet; the mangle-room, 43 by 8½ feet; the drying-closet, occupying a space 26 by 13 feet; a water closet; and a large room over the coal-vaults and boilers, surrounded by movable blinds, and intended for drying clothes without the use of artificial heat, for making soap, &c.

The Carpenter Shop, 36 by 20 feet, is of frame, two stories high, and 45 feet from the engine-house, from which steam may be taken for warming it in winter. It has two rooms below, and a single large one above.

The Carriage-House and Stables make a neat stone structure, 57 by 36 feet, and two stories high. It has accommodations for six horses and as many cows, and the carriages required for the different purposes of the institution. The lower floor is of cement, brick, or blue stone. The piggery is in the yard in the rear of the stables, and there is a carriage-yard in front, both being surrounded by a stone wall.

Size of Rooms.—The height of the ceilings throughout the building, and the size of the parlors and of all the rooms in the centre building, have been already given. The ordinary size of patients' lodging-rooms is 9 by 11 feet, while there are some in each ward of a much larger size, many of which have communicating doors, and are intended for patients who desire a parlor as well as a chamber, or for those having special attendants. The parlors in the first and third wards are 33 by 24 feet, and in the second, fourth, and sixth they are 23 by 30 feet. The dining-rooms are generally 23 by 17 feet. The bath-rooms are mostly 9 by 11 feet. Sixteen rooms in each one storied building have water-closets in them, firmly secured, and with a strong downward draught. The sides of doors and windows in patients' rooms are generally rounded, by being built of brick made expressly for the purpose, and smoothly plastered.

Windows and Window Guards.—The windows in patients' rooms are almost universally 6 feet by 2 feet 9 inches, having twenty lights of glass, 6 by 17 inches, in each sash. In the front wings adjoining the centre, and in the third story of the return wings, both sash are of cast-iron, secured in wooden frames, so arranged as to balance each other, rising and falling only to the extent of five and a half inches, and doing away with the necessity for guards. In the other parts of the return wings, and in the one storied buildings, the windows are of the same size, have the upper sash of cast-iron, and immovable, the lower being of wood, rising to its full extent, and protected by an ornamental wrought-iron guard, securely fastened on the outside. A few rooms in each one story building have small windows out of reach of their occupants, and intended for the temporary seclusion of very violent or mischievous patients. In other parts, as well as in this, wire screens inside of the rooms are occasionally used to protect glass, and ornamental wire-work is adopted in some of the parlors, at the ends of corridors, and in other similar positions, as a guard outside of the windows.

Doors.—The doors throughout are made of the best white pine lumber. In the wards they are 1¾ inches thick, 6 feet 8 inches high by 2 feet 7 inches wide. Each door has eight panels in it, one of which makes a hinged wicket, and what is commonly known as bead and butt, very substantially put together, and wherever special strength is required it is obtained by transverse pieces of iron let into the wood, or by plates of boiler-iron screwed on, and painted so as to resemble an ordinary door. Each door has a good deadlock to it, and occasionally a mortise-bolt is added. Over each door is an unglazed sash, 31 by 17 inches, covered with fine wire on the inside, or a space 31 by 5 inches, which can be filled up at pleasure by a tight board or by wire. Lift hinges have been used for all these doors, which for patients' lodging-rooms always open into the corridors.

Floors.—The floors throughout are of the best yellow pine, cut to order in Florida, and piled up on the grounds two years before it was used. The boards are one inch and a quarter thick, varying in width from two and a quarter to four inches, and put down with secret nailing. Counter-ceiling is everywhere used. The only exception to this kind of flooring is in the two kitchens, the scullery, a space in the basement hall in front, the bake-room, all the sink, water-closet, and wash-rooms, the line between different wards, the entrance to the stairways, and the main wash-room in the engine-house, which are of brown German flagstones, laid on brick arches; the engineer's work-room, which is paved with brick; the front of the boiler-room, which is of iron and blue stone flagging; and the engine-room, one sink-room, and all the ward stairways, which are of slate, admirably adapted to such a purpose, and from the quarries of Eleazer, Jones & Co., at East Granville, N. Y., and which has also been used extensively for window-sills, stairways, and other purposes.

Stairways.—All the stairways in those parts of the building occupied by patients are fire-proof. The framework is of cast-iron, built into the brickwork on each side, and covered with slate, which has many advantages. The rise of these steps is only seven inches; there are platforms every five or six steps, with convenient handrails on both sides, from top to bottom. They are all well lighted by windows by day and by gas at night. The well around which the stairs wind is used for hat or coat-rooms, for the different stories.

Plastering.—The inside plastering is what is called hard finish, composed of lime and sand, without plaster of Paris, except for ceilings, and well trowelled. This finish admits of being scrubbed for years without injury, and is at all times ready for painting. The outside of the building is rough-cast, the material used being the pulverized stone of which the house is built and lime, to which an agreeable shade of colour is given by a sand obtained in Montgomery County. Hydraulic cement is used near the ground in certain positions, in many of the sink and wash-rooms, in the kitchen and scullery, in the main wash-room, and as a substitute for the ordinary wash-boards in many of the ward corridors and patients' chambers.

Roofing.—The roof is of Pennsylvania slate, fastened on lath, and plastered with hair mortar on the under and upper edges and on the joints of the slate. The pitch is one-fourth of the span. The water from the roof is carried off, through four inch cast-iron pipes inside of the building, and easily accessible, into large drains leading into the main culvert.

Sewerage.—The main culvert is 2,032 feet in length. It is 35 inches from top to bottom in the clear, built of brick laid in hydraulic cement, egg-shaped, the smaller part being at the bottom. Beginning near the intersection of the north return wing and one storied buildings, at which point it receives various pipes from the adjacent wards, it passes under the main chimney, by the engine-house and barn, and extends to Mill Creek, into which it discharges just before it reaches Market Street. Through this culvert all the drainage from the building and much of the grounds is carried off, being intersected by branch culverts at various points in its course.

Bath-rooms, Water-closets, &c.—There are twenty-one bath-rooms and as many water-closets in the building. Sixteen are in the wards. Each bath-room has in it a cast-iron bath-tub, covered with zinc paint, and with improved arrangements for the admission and discharge of water through the bottom. In addition to the ordinary hot air flue, there is a coil of steam-pipe for direct radiation in each, so that when hot baths are used the temperature of the room may be made so high as to prevent the sensation of chilliness, when coming from the water. The water-pipes in these rooms are generally of galvanized iron, left exposed so as to be readily accessible, and passing from story to story, through castings made for the purpose, so that in case of leakage the ceilings may not be injured.

The water-closets are of cast-iron enamelled, have no traps, but are open so as to have a constant downward draft of air through them into the main chimney, as have all the sinks, bath-tubs, &c., in the whole establishment. The water is let on by the opening of the door.

The wash-basins in the wash-rooms are of marble, with strong swing-cocks. The sinks are of cast-iron, and have hot and cold water at each. There is also an iron hopper to each, and into which the slops, &c., are emptied. There are permanent fixtures for securing the towels in each wash-room. The drying-closets are sufficiently large to contain a bed, and, like the closets for buckets, &c., have flues leading into and from them, and thus secure a direct communication with the fan below and the ventilating ducts above. All these arrangements in each ward are clustered together, and have scarcely any wood in any part to absorb moisture or retain unpleasant odours.

Supply of Water.—The new hospital is supplied with water from a well 25 feet in diameter, containing 50,000 gallons, and into which, as measured at the dryest period of the last year, is a daily flow of 30,000 gallons of excellent water. There is also a constant small stream of spring-water passing near the well, which can at any time be turned into it. By means of one of Worthington's combined direct acting steam-pumps, capable of raising 10,000 gallons per hour, this water is forced through 708 feet of six inch cast-iron pipe into the four boiler iron tanks in the dome, and from which it is distributed through the entire building. These tanks are 103 feet above the well, and contain 21,000 gallons. They are so arranged that one or all may be used at pleasure, have overflows, and pipes through which they may have the sediment washed out whenever deemed desirable. The elevation of these tanks is sufficient to secure the feeding of the steam-boilers when carrying a pressure of forty pounds to the inch. These tanks were made at the works, and put in place before the roof was on the building. It is intended that they shall always be about full of water, and a small pipe leading from them to the engine-house tells the engineer on duty when that is the case. There is also in the engine-room a single Worthington steam-pump, capable of raising 5000 gallons per hour, and intended to prevent any possible deficiency of water, should an accident happen to the larger engine. The rule is that both should be used some part of every day, so that in case of emergency there may never be a doubt of their being in working order.

The tank for supplying the centre building with hot water is 12 feet in length and 23 inches in diameter, and is placed above the cooking-range, the heat being supplied through circulating pipe from a water back behind one of the range fires, and is abundant for all purposes. The supply of hot water for the wards is derived from six iron tanks, placed in the most convenient points in the cellar, in which situations they are easily accessible, and leakages can do little injury to the building. The heat is derived from steam coils coming from the summer pipe (as it is called) used for cooking and all other purposes, except warming the building. The large steam-boilers at the engine-house are supplied with hot water by the condensed steam used in heating, which ordinarily returns to them by gravity, but when it does not, is received into an iron tank and forced into them by a small steam-pump. The laundry has hot water from a large tank placed in the oven which covers the boilers, and through which the exhaust steam from the engines and pumps can be made to pass whenever desired, and which may also be used for feeding the large boilers. There are three wells of excellent water besides at convenient points near the building, and which supplied all the water required in its erection. A fourth is now being sunk near the stables.

Lighting.—The hospital is lighted by gas from the city works, on the eastern side of the river Schuylkill. The fine meter, from Code, Hopper & Gratz, is placed in the engine-room, and a record is made every morning of the consumption during the preceding night. Stopcocks are placed at convenient points for checking the flow of gas through the main pipes, and the ordinary kinds of fixtures have been adopted throughout the building. The gas is also used for experimental purposes in the lecture-room, and for boiling water, &c., in the medical office.

Furniture.—The furniture is intended to be neat and plain, but of a comfortable and substantial character, the amount in the various apartments being in a great measure dependent on the character of the patients occupying them. Carpets of some kind generally cover the parlors, and some portions of the corridors and chambers. Wardrobes, tables, mirrors, and other conveniences are frequently added to the bedsteads, which last are of various kinds, mostly of wood, but many are of wrought or cast-iron, painted of a light colour, a few of which last are secured to the floor.

Heating and Ventilation.—There is no fire used in any part of the hospital for heating, although provision for open fires has been made in all the parlors and in many of the other large rooms, should such an arrangement ever be deemed desirable. The only fires kept up in the building are those in the kitchens, bake and ironing-rooms.

In the boiler-room at the engine-house there are three large tubular boilers. Each of these has a furnace 5 feet 3 inches wide by 5 feet 3 inches long, and 7 feet 4 inches high. The shell is 17 feet 8 inches long by 4 feet 6 inches in diameter. Combustion chamber 4 feet long, and 98 tubes $2\frac{1}{2}$ inches in diameter and 11 feet long. The total heating surface for each is 744 square feet. The grate surface is $20\frac{1}{4}$ square feet. The escaping gases enter a common flue, and the draft can be regulated by a damper at the back end of each boiler, or the supply of air graduated by a register in the ash-pit door.

These boilers furnish steam for warming the entire hospital, and for driving all the machinery, pumping water, for ventilation, washing, cooking, &c. They are so arranged that one or all may be used at pleasure, either for heating or driving the machinery. The steam is carried from them in a five inch welded iron pipe, and after reaching the hospital building, it is distributed in eighty-three air-chambers, placed in its cellar, with direct flues leading from them to the apartments above. The gases from the boiler fires pass through an underground flue, four feet wide and six feet high, a distance of 557 feet, rising 31 feet in its course, till it comes to the foot of the main chimney, which is 78 feet above the surface of the ground. The chimney is built double, the interior being round, formed of hard brick, without parging, six feet in diameter in the clear from bottom to top, the latter being formed of cast-iron, while the foundation is of pointed stonework to a height of eleven feet, and the remainder of pressed brick. The underground flue alluded to contains the main steampipe until it reaches the nearest point of the building, and also that portion of it which is carried to the north section of the hospital, and is immediately over the main culvert.

This chimney is made the ventilating power for securing a strong downward draft of air through all the water-closets, urinals, sinks, and bath-tubs in the entire establishment, and for this reason is placed in a central position on the eastern side of the building. The coils for heating are composed of welded iron pipes, three-quarters or one inch in diameter, and are in two sections in all the air-chambers, so that one or both may be used, according to the severity of the weather.

In the engine-room are two horizontal high pressure steam-engines, of fine finish, from the works of I. P. Morris & Co. They are exactly alike, each having a cylinder 10 inches in diameter, and a stroke of 24 inches. They are so arranged that either may be substituted for the other, and one may be made to do the work of both in case of emergency. Ordinarily one drives the fan, and is therefore a part of the ventilating apparatus, while the second drives all the other machinery. The fan, made by Wm. Sellers & Co., is of cast-iron, its extreme diameter being 16 feet, and its greatest width 4 feet. It is driven directly from the shaft of the engine, and its revolutions vary from 30 to 60 per minute, according to the requirements of the house. The fresh air is received from a tower, 40 feet high, so that all surface exhalations are avoided, and is then driven through a duct, which at its commencement is 8½ by 10½ feet, into the extreme parts of the building. From the cold air-duct, openings lead into the different warm air-chambers, which in the one storied buildings are covered with slate; but in all other parts of the hospital these chambers and air-ducts are arched with brick, laid with smooth joints. The warm air in nearly all cases is admitted near the floor, and the ventilators open near the ceiling, always in the interior walls. The only exception to this arrangement is in the one storied buildings, in which, in the patients' rooms, the warm air is admitted above, and the ventilators are taken off near the floor. All the ventilating flues terminate in the attic in close ducts, either of brick or wood, smoothly plastered, increasing in size about thirty per cent. more rapidly than the capacity of the flues entering them, and by which, through the different belvederes on the roof, they communicate with the external atmosphere. In the centre building the ventilation is through the main dome.

All the pipe used for heating and water, the bath fixtures and water closets, were made at the works of Morris, Tasker & Co.—and the entire apparatus was arranged and put up by the institution, under the direction of its building superintendent. There is no leaden pipe used in the building.

Cooking and Distribution of Food.—All the cooking is done in the central kitchen, which has in it a large range, with two fires and three ovens, a rotary roaster, a double iron steamer containing ninety gallons, a smaller one, iron outside and copper-tinned on the inside, containing forty-five gallons, and six of tin for vegetables, besides the vessels for tea and coffee. The food prepared in this room is put into closed tin boxes, which are lowered by a dumb-waiter to the car standing on the track of the railroad, where it passes under the kitchen, and is thus conveyed to the bottom of the various dumb-waiters, which lead directly to the different dining-rooms above, of which, as before remarked, there is one for each ward. Each dining-room has a steam-table, with carving dishes on it, and abundant provision for keeping meats and vegetables warm as long as may be desired. The dumb-waiters are all controlled by the person having charge of the railroad; they are moved by a crank and wheel, and wire-rope is substituted for that commonly adopted.

The railroad is an indispensable part of the arrangements for distributing food. By its use a meal may be delivered in all the ward dining-rooms (eight in number) on one side—the extreme ones being 580 feet distant—in ten minutes after leaving the kitchen, or for the whole sixteen in twenty minutes. It also forms a very convenient mode of transporting articles from one section of the building to another, carrying clothing to and from the laundry, and gives a protected passage-way in going from the centre building to the engine-house, barn, and workshop, and for persons visiting their friends in the room set apart for the purpose between the sixth and seventh wards.

Provision against Fire.—As already mentioned, no fires are required in the building for warming it, and gas is used for lighting. Wherever one wing comes in contact with another, or with the centre building, all the openings in the walls, which extend up through the slate roof, have iron doors in addition to the ordinary wooden ones, and which may be closed at pleasure. The floors of the kitchens and bakeroom, in which alone fire is used, are of German flagstone laid on brick arches, and all the stairways in the wings are fire-proof. It is intended that there should always be about 20,000 gallons of water in the tanks in the dome of the centre building, and 15,000 gallons per hour may be placed there by the pumping-engines. A standpipe connected with this reservoir passes into every story and into every ward, in all of which it is intended to have a piece of hempen hose constantly attached, so that by simply turning a stopcock, water may be put on a fire almost as soon as discovered. A steam-pipe also passes up into the attic of each wing, and as one of the large boilers is constantly fired up, steam may at any moment be let into the building by simply turning a valve in the cellar. Hose is also kept near the steam-pumps, so that it may be promptly attached, and water thrown on the barn, carpenter shop, engine-house, and contiguous parts of the hospital. A watchman is constantly passing through the house at night, and by means of two of Harris' watch-clocks, as made by H. B. Ames, of New York, there is no difficulty in ascertaining, not only how often each ward is visited, but almost the moment the visit was made, and of course the time taken in passing from one ward to another.

Laundry Arrangements.—The clothing, bedding, &c., collected in the different wards, after being sent to the cellar, are conveyed from that point by the railroad to the room for assorting clothes in the engine-house, and thence into the large wash-room, in which, besides the usual washing, rinsing, and blue tubs and soap vat, is one of the valuable Shaker washing-machines, in which six different kinds of clothes can be washed at the same time, and a centrifugal wringer, both of which are driven by one of the steam-engines. From the wringer the washed articles are taken to the drying-closet, in which, by means of the heat derived from the exhaust steam from the engines passing through a large amount of cast-iron pipe, and fresh air from the fan, they are in a very few minutes made ready for the mangle (also driven by steam power), or folded and taken by the railroad to the ironing-room near the centre building, to which they are raised by the dumb-waiter already referred to, or are sent directly to the principal clothes-room, from which they are distributed by the same route, as they may be required in the wards. All the divisions of the washing-machine, of the rinsing and washing-tubs, have hot and cold water and steam introduced directly into them, and the water from them all is carried off under the stone floor of the room to one of the iron columns below, through which it passes into the culvert on the outside of the building.

Pleasure Grounds, Gardens, and Yards.—This new hospital is situated in the midst of its pleasure grounds, embracing about fifty acres, and from most parts of which are fine views of the surrounding country; the boundary wall being so arranged, from the natural character of the ground, or made so by excavations, that little of it can be seen from any part of the building that is occupied by patients. There are two pleasant groves of natural forest trees within the inclosure, and several hundred others, evergreen and deciduous, that have already been planted or collected for the purpose, will give an ample amount of shaded drives and walks. A carriage-road has already been made on the inside of the wall, throughout its extent, and winding by the gardens and terraces around the buildings, will ultimately be two miles long. The foot-walks are not to be less extensive, and the brick pavements about the building have been already mentioned. There are also, as may be remembered, three pleasant yards on each side of the building, and connected directly with the adjacent wards.

The vegetable garden will contain about eight acres, and is in full view from the north side of the building. Flower borders have been made near to and around the entire structure. The only fences inside of the inclosure are to give privacy to the patients in the yards, or to prevent those walking about the grounds from approaching certain parts of the building.

Means of Occupation and Amusement.—As the pecuniary means of an institution are enlarged, so, under a judicious administration, may be, almost indefinitely, the modes of giving patients useful employment, and ministering to their instruction and amusement. A brief recapitulation of what are here recognized and used, may not be inappropriate in this connection.

Beginning with moderate and regulated labour in the open air, in assisting to cultivate the farm and garden and to keep the grounds in order, may be added the cultivation of plants and flowers, employment in the workshop, carpentering, joining, mattress-making, broom-making, or any other mechanical occupation to which the patients may be accustomed, and which is suitable for them. Walking in the open air, inside or outside of the inclosure, as all not too ill are expected to do at least twice every day of the week in all pleasant weather; the green-house; visits to objects of interest in the vicinity; riding in the neighbourhood in carriages kept for the purpose, or hired specially, or within the inclosure in the poney phaeton, or wagons driven by the patients or attendants, and occasionally on horseback; excursions through the city of Philadelphia or its vicinity on the numerous horse railroads, or extended to a much greater distance by cars or steamboats; the museums and reading-rooms (two for each building), with their collections of books, pictures, and curiosities; a general library, a small library in each ward, newspapers, and other periodicals; engravings, stereoscopic and other contrivances for showing pictures. The regular course of lectures and evening entertainments occupy three evenings of every week during nine months of the year at each building, and which are made up principally of lectures and readings on a great variety of subjects, of exhibitions of very superior dissolving views, magnified to eighteen feet in diameter, by using the hydro-oxygen light, music, and whatever else seems likely to give interest to the course; various social parties among the patients; all the ordinary games, ten-pins, billiards, bagatelle, chess, checkers, &c., in which patients are likely to be interested, and so arranged as to be used in the evening as well as during the day. Patients, too, are encouraged to engage in certain kinds of study, and in painting, drawing, fancy work, &c.; reading to the patients by teachers in the different wards, personal intercourse by the officers and others employed for the purpose.

When accustomed to such employment, patients often assist in keeping the house in order, and are urged to become interested in other patients, in the use of musical instruments, taking care of pet animals, and whatever else is suggested by individual peculiarities, and come within the resources of the institution. There is also a circular railroad, a gymnasium at one building and a calisthenium at the other, and the intention is to have a duplication of whatever is found desirable in connection with each department.

Medical Treatment.—Although detailed remarks on the medical treatment of insanity can scarcely be expected in an article like the present, still, if no mention of the subject was made, it might be regarded as a failure to recognize its importance. A very large proportion of all the cases received, when carefully examined, give evidence of impaired general health; and there are but a few who do not present indications, not only for a special regimen, and all the appliances for moral or mental treatment, but also for the use of medicines of some kind. While every case must be prescribed for from it own symptoms, it may safely be said that a great majority require a tonic and invigorating rather than a depletory course of treatment. Of all the cases that have been treated in the Pennsylvania Hospital for the Insane (three thousand three hundred and sixty in number), no one, after entering the institution, has seemed to require or had general bleeding performed, nor has a head ever been shaved, for the treatment of insanity. While cold and shower baths have been almost entirely abandoned, warm or hot baths have come to be regarded as among the most important means of treatment.

Cost.—Without a statement of the cost, no account of such a building and such arrangements as have been described would be at all complete, and especially not of one like that under notice, which is entirely the offspring of the benevolence and liberality of a community, a result of practical Christianity, and a generous recognition of the paramount claims which such afflictions of our fellow men have at all times upon our interests and our sympathies. The style of architecture is plain, and all useless ornament has been studiously dispensed with; but wherever the comfort and welfare of the patients were concerned, everything has been done in a thorough manner.

The amount of money paid on account of the new building and its varied fixtures and arrangements, up to the present time, is $322,542 86, and a further sum of about $30,000 will be required to meet the other liabilities that have been incurred. Of this total sum, $20,276 28 have been for the boundary wall and gate-house; $2241 46 for the carriage-house and stabling; $800 for the carpenter-shop; $4456 03 for machinery of different kinds; $23,612 37 for heating and ventilating apparatus; $15,201 47 for grading for building, planting, and improving the grounds; and $10,441 73 for furniture.

Organization.—As heretofore, the government of the Pennsylvania Hospital for the Insane is vested in a board of twelve managers, who are elected annually by the contributors, give their services gratuitously, and, like all the other officers, have no pecuniary interest in the institution. They visit by committees both departments on the 7th day (Saturday) of every week, to examine the accounts, receive reports from the physician, and visit the wards and patients as far as they may deem desirable. Since the opening of the hospital, nineteen years ago, these weekly visits have not been omitted in a single instance. The board of managers appoint the officers resident at the institution, and who are, as before mentioned, a physician in chief, having the general supervision and direction of both departments, and one or more assistant physicians, a steward, and a matron, at each building. In the immediate care of the insane, besides those already mentioned, are supervisors, teachers, or companions for the patients, and not less than two attendants for each ward, which, if the house was entirely full, and no special attendants for single patients (of which, however, there are always several), would give one attendant for every six or seven patients. At night the care of the patients is intrusted to watchmen or watchwomen, according to their sex, and these come on duty before the attendants retire, and do not leave the wards till they are up and engaged in their regular morning duties. The supervisors, teachers, and night watchers are expected to make written reports to the physician daily.

There are also employed for each department, a carpenter, three men connected with the boilers and machinery, a gardener and assistants, coachman, gatekeeper, &c.

Admission of Patients.—This hospital, having no connection with any sect, nor under any political influence, is resorted to by persons of all professions and callings, of every religious denomination, and when it has room receives all classes of insane patients, without regard to the form of the disease, its curability, or the place of residence of the applicant. Idiots, however, it may be mentioned, are not admitted, and cases of mania-à-potu are received only into the hospital at Pine and Eighth streets, in the city of Philadelphia. Some one member of the board of managers gives the order of admission; but before doing so, a certificate of insanity from some respectable graduate of medicine is always required, as well as a request for the reception of the patient, and security from a resident of Philadelphia, or its vicinity, for the payment of all expenses incurred at the institution.

The rates of board vary according to the pecuniary ability of the applicant, the character and extent of accommodation, and the amount of special attendance that is desired—the lowest price for paying patients being not any more than the actual cost of support. In addition to those who pay board, a limited number of recent and supposed curable cases, who are known as such only to the officers of the house, and who have no distinction made in their treatment, are admitted and cared for, without charge of any kind, so long as there seems to be a probability of their being restored. The number on this free list (now 46) is regulated entirely by the resources of the institution, which, as already stated, come entirely from private benevolence, as it receives no assistance of any kind from city or State.

Separation of the Sexes.—Before closing this notice of the Pennsylvania Hospital for the Insane, it may not be uninteresting to state that the completion of the new building allows this institution to carry out, under very favourable circumstances, what has for many years past been gradually gaining favour with some of the most experienced medical officers of American hospitals for the insane—a provision for the treatment of male and female patients in entirely separate buildings.

It is scarcely necessary to say that this arrangement in no way interferes with the humanizing influence, especially for men, of suitable associations between the sexes; but intimacies of this kind between patients ought always to be guarded against. It certainly will be as agreeable and as profitable to all, that these influences shall be exercised by those who are of sound mind and discreet demeanor, rather than those whose impaired intelligence or want of self-control had compelled them to claim the benefits resulting from a residence in the hospital. So far as I am aware, there is not a single advantage in having the two sexes in the same building, and it requires little observation to know that there are many and often not trifling disadvantages; while the separation will not only render the classification much more complete, but permit for both the removal of many restrictions that could not otherwise be dispensed with.

The new building was given to the male patients, because in its construction and arrangements many things could be introduced that seemed specially desirable for men, particularly so in the work department, and because it could not be made to have quite as great a degree of privacy as the other, while there was a large amount of planting and improving about its grounds, which would give pleasant occupation to its inmates for a considerable time to come. On the other hand, the original building was selected for the female patients, among other reasons, because the proposed improvements would give it greatly increased cheerfulness and comfort; that it must always have more privacy; that its grounds were more highly improved; that the trees were more fully matured; and it was also felt that from the greater care, as well as more gentle use it would receive, no very long period would elapse before the two houses would appear as though they had been in use about the same length of time.

As soon as the repairs and improvements now in progress at the department for females are completed, it is believed the two will in most respects be about equal in comfort and efficiency; that nearly the same number of patients can be provided for in each (250 in that for males, and 225 in that for females); and that, with the many advantages not heretofore possessed, the institution will be able to do its full share in promoting a real advance in the treatment of insanity, and a general amelioration of the condition of the insane.

Philadelphia, January, 1860.

Art. II.—*History, Medical Topography, Climatology, Hygiène, Diseases, &c., of Fort Bridger, Utah Territory.* By Roberts Bartholow, A.M., M.D., Assistant Surgeon U. S. Army. (Extracted from Reports to Brevet Brigadier General Thomas Lawson, Surgeon General U. S. A.)

History.—For many years past, Fort Bridger, U. T., has had some celebrity as a trading station, occupied by James Bridger, a famous mountaineer—whence its name. The fort consisted of an irregular collection of log-houses, surrounded by a stockade; built in part for defence against the Indian tribes in the vicinity; in part for conveniences of Indian traffic. When the Mormons occupied the valley of Salt Lake, and grew into a formidable community, the fort came into their possession, and was further strengthened by the erection of a quadrangular wall. Upon the arrival of the "army of Utah," in the fall of 1857, nothing remained of Fort Bridger but this wall—the wooden structures having been burned by the Mormons, when they could no longer hold possession.

The erection of the necessary quarters for a garrison of five companies, commenced immediately after the advance of the main body of the army, in June, 1858; but owing to the difficulty experienced in procuring the necessary materials, proceeded slowly, and at this time,[1] though in a state of considerable forwardness, the buildings are uncompleted. The hospital was so far advanced toward completion as to be considered habitable early in December last, and the company quarters a few weeks later. In a half-finished state the officers' quarters were occupied in January.

Medical Topography, &c.—Fort Bridger lies in latitude 41° 18′ 12″, and in longitude 110° 32′ 83″, in the valley of Black's Fork, a mountain stream tributary to Green River. This valley has an average width of about one thousand yards. Bluffs, more or less prominent, separate the valley from the table-lands on either side: these bluffs are less prominent in the vicinity of the post, which is, therefore, much exposed to the prevalent high winds. The soil of the valley is a sandy alluvium, light, porous, superficial, and consequently incapable of supporting a luxuriant vegetation. Under the alluvium lies a stratum of sand, rubble-stone, and breccias (diluvium), in all respects like the surface formations of the plateaus or steppes. The bluffs which bound the valley consist of sand, conglomerate and shales, and in some situations of magnesian limestone (dolomite). Numerous ravines and mounds of exposed rubble-stone attest that the valley is overflown at the period of annual rise, when the stream receives the melting snow and ice from the Uintah Mountains. Water can be procured at all seasons in the valley by digging a few feet into the substratum.

Ranges of mountains and intervening table-lands constitute the general features of the territory of Utah. Fort Bridger is situated upon one of these plateaus, which stretches from the South Pass to the Uintah Mountains, and elevated more than six thousand feet. This plateau is intersected by a number of streams, bordered by narrow valleys and irregular bluffs. The herbage of these valleys, though not abundant, contrasts strongly enough with the artemesia barrens on either side. The same facts are true in respect of other portions of Utah. In the valleys hard by the streams only can the means of subsistence be wrested from the unwilling soil. Rains falling but seldom, and the atmosphere being remarkably dry, irrigation is absolutely necessary for the production of crops. The amount of life which may be sustained in the territory depends, therefore, upon the amount of water available for irrigation. As this supply is small, a narrow limit is imposed upon production and population: fortunately so, in view of the complicated relations growing out of Mormon civil and religious institutions.

In this connection, rather than under any other head, I may give an account of some of the Fauna and Flora. In the vicinity of Fort Bridger, the country being extremely barren, animal life is not abundant. The mountain fastnesses are frequented by the grizzly bear (*Ursus americanus*) the mountain sheep (*Ovis montana*), and the table-lands are tenanted by that curious little animal, the prairie dog (*Arctomys ludoviciana*). Large numbers of beaver (*Castor fiber*) inhabit the streams. The following birds are found in considerable numbers: of the Columbæ, the turtle-dove (*C. turtur*), and the wild pigeon (*C. migratoria*); of the Tetraonidæ, the sage hen (*Tetrao urophasianus*), and the quail (*T. coturnix*); of the Charadriadæ, the curlew (*Numenius longirostris*). The following water-fowl have come under my notice: the wild goose (*Anser canadensis*), and the mallard duck (*Anas boschas*).

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[1] Sanitary Report for First Quarter, ending March 31, 1859.

Whatever of value in the vegetable kingdom is produced in this territory comes by the labour of man; nature has accomplished little in this department of her works. Along the streams are occasionally seen a few cottonwood trees (*Populus angustifolia*), and an herbaceous willow; but the plains or steppes are treeless, and covered by the wide-spread wild sage (*Artemesia tridentata*), which is valueless for every economic purpose, except a temporary camp fire.

This region, like the steppes of Tartary, to a limited extent, is only adapted to sustain a few herds of grazing cattle, and a nomadic population of savages and half-breed Indian traders, or Mormon freebooters: it can never become a nursery of civilized heroes. As a necessity of their position the wretched inhabitants must prey upon the rest of mankind, and procure by violence and rapine that subsistence not to be obtained by remunerative labour from the arid soil. Exclusive of the Mormon colony at Fort Bridger, who left upon the approach of the army, there are two classes of inhabitants—the Indians, and the "mountain men," or traders. The Utah and the Snake Indians are the only tribes in the vicinity of the fort. I was unprepared to witness in mountain tribes, remote from civilization, so many evidences of physical decay. They are low in stature, square built, unsymmetrical, ungainly in gait, and having an appearance of premature age. The face is triangular, eyes oblique, nose not prominent, lips thick, and hair long, black, coarse, and very thick: a face resembling the Nojai Tahtar. The development of the upper extremities is out of proportion to the lower—the legs being small, crooked, and feeble; no doubt due to being much on horseback from early life, and to the expansion of the chest from diminished atmospheric pressure. As a rule the squaws are more athletic and vigorous than the men; but are far from approaching any elevated standard of beauty. Both of these tribes, as far as my observation extends, are very debased, having none of the elevated sentiments and heroical aspirations attributed to Indian heroes in Hiawatha. It seems to me, in fact, that the Indian races are destined to decay, not as a result solely of contact with a more vigorous race, but by an immutable law of nature. Have they not served their purpose in the social economy of humanity?

The other class to which I alluded consists of Canadian French and renegade Americans, who could not endure the restraints of civilized society, or were exiled by crimes. If we form an opinion of the "mountain men" from the reports of poetic explorers, we would ascribe to them many virtues—integrity, steady friendship, a noble sense of justice, and high personal daring. I did not find the original of this description in real life. They have some of the good qualities of the Bedouin—ready hospitality—and many vices to which he is a stranger. A country like the great plains, which has an analogue in the plains of high Asia, would present an incomplete analogy without that other characteristic—a nomadic people, having a strong thirst for plunder, and acknowledging no law but the *lex talionis*.

These facts, if they exhibit little else, show, I think, the tendency of man, if left to himself, to revert to his original, primitive type.

Climatology.—The mean height of the barometer,[1] for the five months during which observations have been taken at this post, is 23.48 inches. Accordingly, the elevation is about 6,428 feet. At this elevation, and at the 41st parallel of north latitude, the climate of Fort Bridger, properly, is placed in the "upper or cold regions" of meteorological writers. The mean height of the thermometer for eight months, from July last,[2] is 39°.22 F. The proportion of summer months in this estimate is too large for the mean of the year, which would be lower. The lowest range of the thermometer, since the occupation of the post, was 22°. Extreme cold is less evident to the senses, in consequence of the dryness of the atmosphere. As already intimated, rain seldom falls; but snow storms of greater or less severity occur in every month of the year. On the summit of the Uintah Mountains the domain of "perpetual snow" is reached, where great fields of snow lie all summer, in full view from the fort. The chief feature of the climate is the almost constant prevalence of high wind from the southwest, at times blowing with the intensity of a hurricane. A calm day is a phenomenon rarely observed at Fort Bridger.

Hygiène.—The foregoing observations, with propriety, introduce the subject of hygiène. I include under this designation, air, exercise, food, clothing, habits, and the duties and employments of the command, in so far as these influenced its sanitary condition.

From the preceding account of the situation and climate of Fort Bridger, it will be perceived that the maximum amount of healthy air has been secured by the location of that post. No bluffs being interposed or forests, the strong wind, cooled in its passage over the snow-covered summits of the Uintah Mountains, sweeps through the fort, penetrating every crevice. The quarters, built substantially of logs, though incomplete, are much more comfortable than the canvas houses and tents in which the troops lived prior to December. The company quarters at present occupied are much too small for the full standard of strength; consequently, additional buildings are being erected. By crowding the men into too confined a space, sufficient regard has not been paid to cleanliness. This is more especially the case with the dragoon companies. The necessary attention to his horse and equipments prevents the dragoon soldier exercising a proper care over his own person ; beside his duties expose him much and frequently to filth. This cause of disease, under less favourable circumstances, might have produced various grave disorders ; here, however, it influenced in a remarkable manner the development of a disease of which there was a general predisposition at the post. An interesting fact in the history of scorbutus, which will appear further on.

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[1] Green's Cistern Barometer.

[2] July, 1858.

Since the arrival of the present garrison, it has been engaged in great part in the work of building, in procuring fuel, in guard and police duty. These employments have not, in any appreciable degree, influenced the health of the command.

The diet of the men consists of the ordinary ration, to which the antiscorbutics are added from time to time, in extra issues, on the recommendation of the medical officer.

The water supplied by the branch of Black's Fork, which runs through the Parade, is pure, clear, and palatable. If this were the only beverage used by the men, my professional duties would be somewhat the lighter. A vile concoction, known as whiskey, has been from time to time surreptitiously sold to the troops, notwithstanding prohibitory orders from the commanding officer. Manufactured by traders from alcohol, tobacco, cocculus indicus, and other narcotics, this liquor has in one instance produced an immediately fatal effect, and more or less alarming symptoms in various instances. From a certain specimen of whiskey, an appreciable quantity of tobacco was separated by a paper filter!

Diseases.—I arrange these into two classes :—

I. Ubiquitous diseases, which occur under all circumstances of climate and every local condition, including fevers, inflammations, and specific diseases.

II. Local diseases, including a certain febrile state, known as "mountain fever," scorbutus, neuralgia, and rheumatism.

The typhoid or enteric fever is an ubiquitous disease, in so far as the United States is concerned, and occurs under the most opposite conditions of climate. It is, I am persuaded, one of the forms in which the so-called mountain fever manifests itself, and will be considered under the second head in connection with that disease.

I. I have not happened to meet with any cases of common inflammation—serous, mucous, or parenchymatous. The tendency of high latitudes and considerable elevations, it is asserted, is to the development of thoracic inflammations ; but certainly this is an error as regards this region. No cases of idiopathic pneumonia or pleuritis, or of phthisis, have fallen under my observation. It is a question well worthy of consideration, whether the climate of this elevated region is adapted to the amelioration and cure of the tubercular diathesis? As phthisis is annually on the increase in the United States, and as the subject of its hygienic management becomes more important than the treatment by medicaments, in view of recent researches, the consideration of climate is of the utmost consequence.

In my report for the third quarter, 1857, I remarked the beneficial influence of the march over the plains, upon those in whom a "phthisical tendency was marked and imminent." The equability of this climate, its dryness and the purity of the atmosphere, together with diminished pressure, constitute a hygienic state highly favourable to such improvement. Fort Laramie, though not so elevated as Fort Bridger, has, in all its surroundings, a similar character. Assistant surgeon G. K. Wood, in his reports from this post, has prominently noticed the remarkable exemption of the various commands stationed there from all phthisical diseases, and the notable improvement of all such as came thither labouring under the incipient or well-established forms of consumption. To active exertion, inseparable from life on the plains, may be attributed some of the benefits experienced in these cases. Much of the change is accomplished, I doubt not, by the increased expansion of the lungs in consequence of diminished pressure; by the determination to the surface, and by the purity of the respired atmosphere. From these considerations, it appears to me quite evident that to the victim of acquired or hereditary predisposition to consumption, the great plains and the Rocky Mountains offer more certain relief than any other climate in our country. A journey over the plains is not so formidable an enterprise as a few years since: it can be made now both with celerity and safety.

With regard to the specific diseases little need be said. Variola and syphilis, especially the former, have at various times committed extensive ravages amongst the Indian Tribes.

II. "Mountain fever" is a term applied to a form of disease said to be peculiar to the elevated regions of the Rocky Mountains. Under this designation it is described in the *St. Louis Medical and Surgical Journal*, for March, 1855,[1] by Dr. Ewing, who considers it a disease *sui generis*, appearing only at an altitude of about 7000 feet, and dependent upon the respiration of rarefied air, in some mysterious way not explicable. He thinks the situation at which the fever occurs precludes the idea of the agency of malaria in its production. Dr. Ewing's description corresponds to some of the cases it happened me to meet at Fort Bridger. As already intimated, I consider typhoid fever as one of the forms of the so-called mountain fever. Two types of this affection are, therefore, to be described —the periodical and the continued. It will be seen further on how these, by certain local conditions, are so much modified as to be readily confounded, and to present so many variations from the true type as to be considered an original disease.

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[1] Quoted in Dickson's Elements of Medicine.

The periodical cases were usually remittents or quotidian intermittents. Many of the latter, when left to themselves, early assumed the remittent type; consequently, remittents much more frequently come under treatment.

Symptoms.—All cases were ushered in by a chill, more or less decided, which lasted a variable period. In the febrile stage the pulse was full, quick, frequent but soft, and sometimes dicrotic; skin hot, dry, and mordicant; tongue heavily furred in the centre, red and dry at the edges and tip. There were present also intense cephalalgia; aching in the back and limbs; suffusion of the eyes; loathing of food, and sometimes nausea and vomiting. Delirium occurred in several cases during the exacerbations. The remissions were characterized by debility, listlessness, and indisposition to the slightest exertion of body or mind, and a most painful aching of the limbs. The countenance at these periods was vacant, dull, and tinged a dirty-yellow; the pulse small, quick, irritable; the skin moist, perspiring, but sweating was never profuse. Diarrhœa was a frequent symptom: the stools were thin, yellowish, watery, and offensive, occasionally greenish, dark-brown, or black. Urine was usually scanty, and deposited an abundant lateritious sediment.

The chill was not regular in duration, nor did it usually amount to a distinct rigor, and the febrile reaction was extremely gradual in its approach. In some instances the two stages were coincident, and during the highest excitement a sense of chilliness was experienced. The appearance of the tongue was peculiar—heavily loaded with whitish fur, through which enlarged papillæ protruded: like the "strawberry tongue" of scarlatina. The most painful as well as persistent symptom, was the aching of the back and limbs. Having suffered an attack *in propria persona*, I can testify to the acuteness of these pains. By some officers of the army, who had some experience with the pains of dengue, it was likened to that affection, and bore amongst them the name of "break-bone fever." There was little regularity in the paroxysms, either in duration or periods of recurrence.

Two classes of cases occurred, differing only in intensity: the *mild* and the *grave*. The former, if left to the unassisted efforts of nature, after a variable duration, gradually ceased, but manifested a disposition to relapse at uncertain intervals; the latter, however, tended to the continued type, if not arrested by quinia, and were not easily distinguished from the typhoid cases, which, during the early stages, were unequivocally remittent. This is a fact with regard to the behaviour of typhoid fever at considerable elevations, heretofore observed—the occurrence of distinct remissions, and it is this circumstance which, in my opinion, has confused the differential diagnosis of the two affections, creating the impression that they were forms of the same disease—"mountain fever."

The typhoid fever of Utah has other peculiarities beside the occurrence of remissions. Many of those general symptoms, so characteristic, were wanting: coma, subsultus tendinum, muttering delirium, floccitatio; but in all were present some mental disturbance and stupor, cophosis, epistaxis, gurgling on pressure over the ileo-caecal valve, pea-green, watery stools; in two instances the "rose spots," and frequently the sudamina and sour-smelling perspirations. All the fatal cases were submitted to a post-mortem examination, and the characteristic lesions of typhoid fever invariably found.

Holding these views of the nature of the so-called mountain fever, and having treated it successfully by the abortive method—the heroic administration of quinia—it remains for me to account for its origin. I do not hesitate to declare my conviction that the periodical form of mountain fever is a disease of malarial origin, modified by elevation and rarefied air. The cases which occurred in the army of Utah, happened in those men who had served in Kansas and been exposed to the miasm of the Platte Valley on the march over the plains. I saw other cases, and the most violent, amongst teamsters from Missouri and Illinois, who had frequently suffered attacks of undoubted malarial fever. The ordinary intermittents and remittents of the Platte Valley gradually changed in character as the troops ascended the table-lands of the Rocky Mountains, until, having reached the south pass, they merged into that febrile state already described, yet not by an abrupt transition. Those attacks, which, it is alleged, have occurred amongst the *habitues* of the mountains, are not well authenticated cases of periodical fever, but were rather typhoid, modified, as I have already shown that affection is, by elevation. In Salt Lake Valley, mountain fever is extremely common amongst the *newly arrived emigrants;* much less so amongst the resident inhabitants, who have undoubtedly typhoid fever, but confounded with the periodical fever, and both known under the same local designation.

Ten cases of scorbutus are at present[1] under treatment in the hospital—all of them privates from the two dragoon companies at this post. A general predisposition to the scorbutic cachexy no doubt existed in the whole command, owing to the absence of fresh vegetables and to the unvaried diet; but was developed in the dragoon companies by an especial cause—want of cleanliness, the result of circumstances before explained. In these two companies the disease attacked by preference the men of dissipated habits, addicted to the use of bad whiskey. Here, then, we have established two existing causes of land scurvy, which are, probably, the exciting causes in a majority of the cases, as they occur in our army. Despondency, *ennui*, deficiency of vegetable aliment, and the exclusive use of salted provisions, are the most apparent predisposing causes. Viewed in this light, the indications of treatment are clearly for the use of certain hygienic means—cleanliness, such mental amusements as may relieve the tedium of confine-

[1] March, 1859.

ment, exposure to fresh air and sunshine, and the use of an exclusive vegetable diet, or a mixed diet of vegetables and raw beef. I have seen no benefit result from the use of the various medical agents recommended.

The introduction of the "desiccated vegetables" into the military service has been of incalculable advantage in the prevention of scorbutus. When the scorbutic cachexy is well established, the desiccated vegetables are not so efficacious in the cure as fresh vegetables; yet, in situations where the latter cannot be procured, are indispensable. Of the two kinds issued by the commissary department—the "mixed vegetable" and the "desiccated potato"—the latter is preferable, as well for the prevention as for the cure of scurvy.

The neuralgic and rheumatic affections occur so constantly upon the table-lands and plateaus of the interior continent, as to be considered having especial affinity for a dry and rarefied atmosphere. Elevation, however, does not modify the symptoms peculiar to each, but increases the obstinacy and persistence of the symptoms. In treating the cases of acute rheumatism which occurred during the past winter I followed the teachings of Dr. Fuller, and have every reason to be satisfied with the results.

In concluding this article, I am sensible of the limited field for observation afforded the physician in the diseases of Fort Bridger. Whilst no new facts are presented, the behaviour of well-known diseases under somewhat novel circumstances may not be devoid of interest.

FORT RIDGELY, MINNESOTA.

ART. III.—*Contributions to Pathological Histology.* I. *Remarks on Errors in the Anatomical Diagnosis of Cancer.* II. *Remarks on a Secondary Cancer of the Axilla.* By J. J. WOODWARD, M. D., of Philadelphia. (Read before the Biological Department of the Academy of Natural Sciences of Philadelphia. Dec. 4, 1859, and Jan. 16, 1860.)

I. *Remarks on Errors in the Anatomical Diagnosis of Cancer.*—It is the purpose of this paper to record an error in diagnosis committed by its author, and to draw from it its logical conclusions.

The details of the case will be first stated with as much accuracy as possible, and without comment, that those whose doctrinal views differ from his may make of it such use as they think proper; subsequently, the pointings of the case will be made the subject of a few remarks.

In a paper, entitled "Remarks on the Anatomical Diagnosis of Cancer," read before the Biological Department, November 15, 1858, and published in this journal, in January, 1859, two illustrative cases were presented. It is to the first of these two cases that reference is here made.

The patient, it will be remembered, was an unmarried woman, 43 years of age, and the tumour occupied the left breast. It was removed by Prof. Henry H. Smith, at the Clinic of the University of Pennsylvania, October 16, 1858. As the article in this journal to which I refer was written purely from the anatomical point of view, a full history of the case is not presented by it. I condense, therefore, the following details in the history from the *Medical and Surgical Reporter* for October 29, 1858, p. 84.

The tumour had been first noticed in the breast as a small kernel about the size of a chestnut, a year previously to the operation. It was accompanied at that time by great tenderness and intense burning pain. After a time several smaller kernels could be felt surrounding the primary one, and thus the disease progressed until the whole gland was involved. When the patient was first seen by the author, some two months prior to the operation, the breast was found to be uniformly enlarged, and about once and a half its natural size. It was smooth and regular upon the surface, presenting to the touch no nodosities; on pressure it was found to be exceedingly hard and unyielding, the pressure sometimes causing pain. The skin covering the breast was natural in appearance, but abnormally adherent to the gland, especially around the nipple. The nipple was large and indurated, but *not retracted;* the sebaceous follicles in the areola were enlarged and prominent. The gland was movable and not adherent to the pectoral muscles. It was the seat of considerable pain, especially at the menstrual periods, or after excessive bodily exertion. At each menstrual period it was much enlarged, diminishing a little during the intervals.

The patient was of a nervous and excitable disposition; but her general health was good and her frame was robust. The opposite breast was healthy; but there was a very slight induration in one of the lymphatic glands of the axilla on the affected side. On the arm of the same side, over the belly of the biceps muscle, was what was presumed to be an adipose tumour: it was soft, doughy, and painless, and had during eight years gradually attained the bulk of a man's fist, without causing any suffering or inconvenience.

Under the influence of local bloodletting and emollient and anodyne applications the tumefaction in this breast at first gradually diminished, and its painfulness was to some extent relieved; but it continued hard, became even more adherent to the skin than at first, and subsequently began once more to enlarge.

It was, therefore, removed by Prof. H. H. Smith, by the usual operation. At the time of its removal the diseased gland presented the following conditions: (*American Journal of Medical Science*, loc. cit.) It "was enlarged to once and a half its normal size. It was smooth, regular, hard, and adherent to the skin; which, however, was healthy in appearance."

Such were the symptoms and the history of the case prior to the operation.

The external and minute anatomical details presented can be found in full in the article in this journal to which reference has been made, and need not, therefore, be reproduced here. Suffice it that a careful examination led to the conclusion that the lesion was not cancer, but that the fibrous stroma of the breast had been the seat of a new formation of connective tissue, which had given rise to the great induration of the gland. No new formed elements were detected, but the symmetrically developing spindle-shaped cells of immature fibrous structures. And although the epithelium of the milk ducts (the gland lobules having disappeared as is normal in a single woman of this age) was in a state of fatty degeneration, the opinion was expressed by the author that the essential lesion was *not cancer, but an innocent connective tissue formation.*

Nevertheless, the history of the case has since shown, beyond the possibility of cavil, that a grave error in diagnosis had been committed. And the cancerous disease to which the patient was a victim did not fail to return at an early period, run a most malignant course, and destroy the sufferer. The healing process commenced favourably in the wound made by the operation, and in less than a week the patient was walking about the ward. Shortly after this, however, she began to complain of sharp pains shooting through the left side of the chest. These, however, were at first more or less completely relieved by anodyne liniments. But subsequently the healing process was disturbed and no longer progressed as rapidly as at first, and more or less induration in the skin and subcutaneous adipose layer adjacent to the wound became perceptible. The pains in the chest gradually became more severe, and were exaggerated on inspiration; burning and tingling sensations were experienced in the indurations about the wound; the patient's naturally nervous disposition became yet more excitable, and she began to emaciate.

The wound cicatrized at length; but not until the whole line of the cicatrix was surrounded with well-marked, rounded, hard nodules of some size, flanked by numerous smaller nodules from the size of a pea to that of a shellbark. The skin covering these nodules, especially those bordering upon the cicatrix, became congested and livid, and from time to time the cicatrix gave way and permitted the exit of small quantities of an offensive ichorous discharge.

Graver symptoms now rapidly followed each other. The opposite breast began to indurate. It became slowly and uniformly hard, and adherent to the pectoral muscle; but as in the case of the primary tumour, though the breast was totally diseased, there was no retraction of the nipple, which became enlarged and indurated, while the areola grew dark, and its sebaceous follicles prominent.

Still later the peculiar yellowish hue of the skin, characteristic of the so-called cancerous cachexia, set in. It was accompanied by a marked enlargement of the liver, recognizable by the increased area of dulness on percussion over that organ, and by the possibility of feeling the shape of the lower margin of the enlarged gland projecting downwards below the edge of the ribs.

The pains had meanwhile become torture, coming on in paroxysms of terrible severity, of two or three days' duration, which were scarcely rendered bearable by the administration of large doses of anodynes. They were chiefly seated in the secondary growths about the cicatrix, and in the lung of the left side; but seemed to radiate thence to all parts of the body. The pain in the lungs had gradually become associated with the most dreadful dyspnœa, which compelled the patient to retain the sitting posture night and day. The new formation had gradually extended till the whole of the front of the chest was involved in one morbid mass, which extended from the clavicles to the inferior margin of the thorax, and from axilla to axilla. So extensive and compact was the diseased structure, as almost to abolish the respiratory motion of the ribs, so that respiration was wholly performed by the diaphragm, the motion of which was considerably embarrassed by the enlarged liver. No ulceration occurred in any of the visible secondary growths, though from time to time a sanious discharge continued to issue from the line of the cicatrix.

The patient now gradually sank, overwhelmed by her frightful sufferings: the lower limbs became œdematous, and finally paralytic; a foul, bloody discharge of a horrible odour issued from the vagina; her emaciation became extreme; the jaundiced hue of the skin decided, and the dyspnœa became more and more complete, until she died, November 17, 1859.

These symptoms are quite enough to determine the cancerous nature of the disease. Here is not only cancer, but cancer of the most terrible malignancy, and of more than the average rapidity in its progress. It is much to be regretted that a complete post-mortem examination was absolutely refused by the family of the patient; with great difficulty permission was obtained to remove a small portion of one of the larger nodules, near the cicatrix of the operation. This was submitted to careful anatomical investigation; and this examination, however much it may be wished that a more complete autopsy had been accorded, is sufficient to prove that the secondary growths had in the part examined at least the *ordinary anatomy of cancer.*

In the piece obtained for examination the skin had coalesced and become confounded with the subcutaneous tissues into one hard, uniform mass, difficult to cut, and grayish-white in section.

In this mass the meshes of a dense fibrous stroma (especially rich in yellow elastic tissue in its superficial parts) were found packed full of nuclei and nucleated cells, which were displaced on scraping, forming a creamy juice.

The free nuclei were comparatively scanty; they were rounded, oval, or multiform, $\frac{1}{2500}$ to $\frac{1}{1800}$ of an inch in long diameter. Owing, probably, to post-mortem changes (the piece having been removed thirty-six hours after death) they were so granular that the characteristics of the nucleoli could not satisfactorily be made out.

The cells, rounded, oval, or polygonal, presenting granular contents, and generally one nucleus, similar to those above described, varied from $\frac{1}{1300}$ to $\frac{1}{700}$ of an inch in long diameter.

Besides these, the juice presented scraps of white fibrous and of yellow elastic tissue, and innumerable oil-drops, granules, and granule masses, some of the larger oil-drops being of a peculiar bright orange colour.

Entangled in the cancerous mass a few atrophied fat lobules of the panniculus adiposus were yet discernible; some of these presented the normal colour, others contained in the compressed fat cells the peculiar orange-coloured fat above alluded to.

Such, so far as the facts could be obtained, are the history and anatomy of the case. They have been detailed by themselves, and apart from any remarks they may suggest, in order that the FACTS may not appear obscured or perverted by the following considerations, to which they have given origin.

In the first place, the data above furnished abundantly justify the conclusion that the primary affection for which the breast was originally removed, and the secondary growths about the cicatrix in the opposite breast, and perhaps in several internal organs, were all parts or manifestations of the same general disease.

Of course the possibility cannot be denied, that after the removal of an innocent tumour the patient may subsequently be attacked by cancer. But a strict review of this case puts such a possibility out of the question for it. Not only is the whole history from the date of the operation that of a rapidly recurring cancer; but it is especially to be noticed that in all its external characteristics the secondary tumour in the right breast simulated closely the primary tumour in the left. In both, the left breast at the time of its ablation, and the right at the time of death, the whole gland was indurated, uniformly hard and smooth, the skin over it adherent, the nipple large and indurated, but not retracted, the areola dark, and its sebaceous follicles enlarged and prominent. In fact, there is no language that would describe the external appearances of the affection of the one breast, which would not apply in all strictness to the other, except that the breast last affected ran its course more rapidly, and had at the time of death become adherent to the pectoral muscle.

If, then, as probably none would attempt to deny, these secondary growths be cancer, the cancerous nature of the primary tumour must certainly be admitted; and this once admitted, it would appear that a growth which anatomically consists of symmetrically developing connective tissue (a so-called fibro-plastic formation), may, nevertheless, in spite of its apparently innocent anatomy, be a cancer, about to run the usual malignant course.

The possibility thus indicated has already been several times realized by observation, both in Great Britain and on the continent, and has led to the erection of a class of malignant fibro-plastic growths. This group or class is, however, at present but ill defined, and much patient investigation will be required to show how far the existence of such a class is legitimate, and what should be its limits.

A single fact, however, in connection with the case under discussion, will prevent it from being classed elsewhere than among the true cancers, and that is, that the *anatomy of the secondary growths*, as far as they were examined, was *the ordinary anatomy of the most completely pronounced cancerous formations.*

The error in diagnosis thus recorded will not, it is conceived, militate very seriously against the true value of minute anatomical investigation in assisting the diagnosis of cancer. It is, also, confidently believed that the detailed publication of the particulars of such errors in anatomical diagnosis will have inevitably the effect of diminishing their number; will furnish fresh data for a wiser determination of doubtful cases, and have a constant tendency to diminish the size of that group of *transition forms* which stand on the border line between innocent and malignant growths.

But, besides the value this case possesses from this point of view, it assumes fresh interest when looked at from the stand-point of the disputed question of homology. Without visible heterology of structure, the primary growth above described was, nevertheless, cancer; and this consideration appears to suggest in this case a query thus expressed by the author in a former paper:—

"May a growth, whose anatomy is that of symmetrically developing connective tissue, subsequently assume the cancerous character; or is the distortion and malformation characteristic of the elements of cancer impressed upon them from the earliest period of their existence?" (See "Contributions to Pathological Histology," *American Journal of Med. Sciences*, October, 1859, p. 334.)

Up to the present case, the possibility implied by the first part of this query has not been realized by the author, who has seen primary tumours of extremely minute size, and of far briefer duration than that under consideration, presenting the cancerous anatomy. Such was not, however, the case in the present instance, in which a primary growth of symmetrically developing connective tissue was followed by secondary formations, presenting the ordinary anatomy of cancer.

Now, it may fairly be assumed from the known habitudes of cancerous growths, that had not excision of the mammary gland been resorted to, the disease would, nevertheless, have steadily progressed; the opposite breast, the surrounding integuments, and perhaps the internal organs, would all have become as completely diseased, and in the same manner, as actually occurred. In this case, two possibilities only can be conceived of with regard to the mammary gland: either it would have retained the anatomy it presented at the time of the operation, or it would have acquired, by the metamorphosis of elements then existing, or by the subsequent development of others, more or less of the anatomy of cancer.

In either case, an intimacy of relationship is shown to exist between a connective tissue formation and cancer, which is easily explicable from the stand-point of the doctrine that the typical elements of ordinary cancer are deformed young connective tissue elements; but which is most mysterious and unintelligible from the stand-point of the heterologists.

In fact, in view of the frequent anomalies of nutrition, as manifested in cancer, it is not surprising that the degree of deviation from the symmetrical mode of development (supposing cancer to be a "malformed and aborted new formation of connective tissue") should vary greatly in different parts of the same growth, and in the whole growth at different periods of its history, being sometimes very much less decided than at others, and occasionally even so trifling as to give rise to error in the interpretation of the appearances presented. And the practical deduction would follow from these considerations, that of a growth presenting in full the cancerous anatomy, the history of cancer can be predicted with greater certainty than will attach to a denial of the cancerous nature of a growth based upon its anatomical similitude to the benignant or symmetrical connective tissue formations. At the same time the opinion must be expressed, that the number of cases in which error will arise from this source will be comparatively few.

II. *Remarks on a Secondary Cancer of the Axilla.*—The purpose of these remarks is to record the progress of a case diagnosed upon anatomical grounds as one of cancer, and published more than a year ago in this journal. (See "Remarks on the Anatomical Diagnosis of Cancer," *American Journal of Medical Sciences*, January, 1859.)

The article to which reference is made was illustrated by two appended cases. The result of the first of these cases is detailed in the preceding paper. The second is that now referred to. It was stated in the original description of this case, that "its cancerous nature could only be safely announced on the grounds of the minute structure of the growth." The patient, who was aged about sixty years, "presented in her left breast an ulcer the size of a half dollar, which involved the nipple, and had gradually attained its present size during a period of about eighteen months. During this period it had been carefully treated, but refused to yield to any of the measures adopted; and as the patient suffered much inconvenience from the pressure of her dress upon the sore, it was deemed best to dissect out the ulcer, including with it the whole induration, which was accordingly done."

The operation was performed by Prof. Henry H. Smith, in the month of October, 1858. The wound healed rapidly, and for a time the patient was apparently cured. At this time, in speaking of the case, I said: "The appearance of the patient, however, is far from what would be expected in a case of carcinoma. This, however, will not invalidate the diagnosis; emaciation and impaired general health are frequently absent in cancer until a very short time before the fatal termination."

The progress of this case has since shown that the opinions formed were correct. The patient, after enjoying excellent health for a number of months, noticed late in the summer of 1859 a small indurated swelling in the left axilla. This enlarged, became adherent to the skin, and finally ulcerated. It was never painful, but from its position was constantly chafed by the clothes, causing considerable annoyance.

The tumour was dissected out by Prof. H. H. Smith, October 2, 1859, one year subsequently to the primary operation, and about three months after the axillary tumour first appeared. Several isolated lymphatic glands, enlarged and indurated, were dissected out with it. The wound healed readily, and the patient's general health is still good.

The pieces removed were kindly handed to me for study by the operator.

The *tumour* was rather smaller than a hen's egg. The skin covering it was thin and adherent to the subjacent growth. It was conoidal in form, and presented on the apex an ulcer three-quarters of an inch in diameter. The skin immediately around the ulcer was livid and congested.

A section cut perpendicularly through the growth was grayish-white in colour, mottled with yellowish spots and streaks. It was intimately connected with the superjacent skin, and bounded elsewhere by the adipose tissue of the axilla. It is probable, from its history and situation, that this tumour was in fact a cancerous growth in one of the lymphatic glands of the axilla; but the disease had progressed too far to permit the recognition in any part of the original normal structure.

Thin sections showed, when carefully examined, that the growth consisted of an exceedingly delicate fibrous stroma, in which were imbedded nuclei and nucleated cells, with granules, granule masses, and oil-drops.

The *free nuclei* were generally rounded or oval, with dimly granular contents, and one or rarely more than one nucleolus. In long diameter they varied from $\frac{1}{2500}$ to $\frac{1}{2000}$ of an inch.

The *cells*, from $\frac{1}{1000}$ to $\frac{1}{500}$ of an inch in long diameter, were oval, polygonal, or irregular, with granular contents, and 1 to 3 nuclei similar to those above described.

Spindle-shaped or caudate elements were quite rare.

The four or five *indurated lymphatic* glands removed with the tumour varied in size from that of a horse-chestnut to that of a Lima bean. When cut into and examined, they were found to be quite similar, both to the naked eye and in minute anatomy, to the principal growth.

Any lengthy remarks upon the history or anatomy of this case would be quite foreign to my present purpose, which is simply to place the case upon record in its present phase, with the intention of again recurring to it when it shall have reached that termination which would now appear inevitable.

Art. IV.—*The Silver Wire in Ununited Fracture, with a Case.* By E. K. Sanborn, M. D., Prof. Surgery in Castleton Med. College, and Berkshire Medical College, Massachusetts.

In a late number of this journal (July, 1859) I reported the history of a case of "ununited fracture of the radius and ulna successfully treated by drilling and wiring," the case having previously resisted the means ordinarily used by surgeons to procure union, including simple drilling and the seton.

Since the publication of the above case I have made further trial of the wire, in a case of false joint of three years' standing, and the result goes far to confirm the opinion there expressed, that the operation, both in safety and certainty, was superior to the operations generally practised in such cases.

The necessity of freely exposing the ends of the fragments, and of dissecting away ligamentous connections or coverings, in order to insert the wire satisfactorily, makes the operation appear somewhat formidable, in comparison with the so-called milder methods, as the introduction of the seton, drilling, acupuncture, &c. But it has appeared in the three cases in which I have performed the operation, that both the local and constitutional disturbance was very much less than that produced by the seton in the same cases. For in each case in which I have introduced the wire, the *seton* and the operation of *drilling* had been unsuccessfully tried—the seton especially being followed by erysipelatous inflammation of a dangerous character in one case, and long-continued suppuration in another. The testimony of my patients is conclusive to the fact, that *wiring* is less severe than the seton. And it will be noticed in the report of the case below given, that the seton had been worn thirteen weeks, occasioning at times severe suffering, from inflammation and abscess; while, in the operation by the wire, the external wound was healed and the union of the fracture quite firm in forty-two days, and the inflammatory symptoms were altogether of a trivial character.

Wiring, as I have performed the operation, is in fact the application of the "silver suture" on a large scale to fractured bones; and it will be quite evident to any one familiar with the action of metallic sutures in the soft tissues, that they fulfil quite closely the conditions required for the union of unrepaired fracture, which are immovable, and close coaptation of the fracture ends of the broken bone, for a considerable length of time, associated with a *continued and gentle stimulus to the vessels of the bone and periosteum at the point of fracture.* It is also essential, for the speedy and perfect progress of the reparative action in the bone, that the surrounding soft tissues should be free from the higher stages of inflammation. According to my observations, if the wire is properly inserted, and is allowed to remain undisturbed, the bone in a few days becomes passive to the presence of the foreign body; while the wound in the soft tissues closes up around the projecting wire almost as speedily as in a simple cut. Even under considerable tension, produced by daily tightening the "loop," the separation of the wire in my cases has been a slow process—not being accomplished under twenty or thirty days.

Case.—L. T., Enfield, N. H., 33 years old, married, and healthy—*ununited fracture* of the lower third of the right humerus. According to the patient's account the accident occurred in 1856, or about three years since. The fracture was received while at work with a threshing-machine, and was compound.

The case was under the care of a skilful surgeon, but without any apparent reason the bones failed to unite.

Seven months after the accident the patient went before the clinic of Dartmouth Medical College, where the operation of *drilling* (after Brainerd's method) was performed.

Getting no benefit from this operation, the patient, six weeks afterwards, went to Boston, where he placed himself under the care of Dr. Warren, in the Massachusetts General Hospital. Here a seton was introduced, which was retained thirteen weeks. The irritation produced by the seton was severe, and at last suppuration was so extensive and the pain so great that it was removed.

This operation was also unsuccessful, and in view of the failures, and the fact that the patient while young had suffered from *necrosis* of several of the bones of the lower extremities, an unfavourable prognosis was given, and the young man returned to his home.

Since that time nothing has been done in the case. At the present time (June, 1859) the limb presents the usual features of confirmed false joint. The arm is nearly useless, and is carried in a sling. The upper arm is very much shrunken, and somewhat scarred by operations and abscesses. The ends of the fragments can be freely felt, and they slip by each other to the extent of an inch and a half, in any attempt to move the limb.

The forearm is well developed, and in some positions, when a leather bracelet is worn about the fracture, the hand is useful. The general health of the patient is perfectly good.

Seeing nothing in the present condition or previous history of the case that could interfere with the success of the wiring operation, I suggested the plan, and on the 16th June the operation was performed in presence of numerous medical gentlemen of this town and neighbourhood.

Operation.—The patient being fully etherized, an incision about five inches in length was made over the fracture, on the outside of the arm, extending down to the bone. The ends of the fragments were found to be inclosed in a strong capsular ligament, which, on being opened, discharged about half an ounce of clear synovial fluid, having about the consistence and appearance of lamp-oil. This capsular envelop was dissected away, and the ends of the bones fully disclosed. This capsule was interspersed with numerous small osseous scales, which made it somewhat difficult to cut; and at the point where the membrane was attached to the bone were numerous rough projecting bony points, and ridges which probably marked the sites of the *drill-holes* formerly made. The end of each fragment was covered with smooth cartilage—the upper fragment exhibiting a sort of shallow cavity on its broken end, in which played the rounded end of the lower fragment, after the manner of a ball-and-socket joint. The cartilaginous covering was dissected from the ends of the bones, and the surfaces deeply scarified with the bone-forceps. From the lower fragment a projecting spike of bone was also removed. With a common small sized gimlet several holes were then bored obliquely through each fragment. The instrument entering on the periosteal surface about an inch from the extremity, and coming out at the end.

Through one set of these holes was then inserted a stout wire (made by twisting together four strands of the largest silver wire as used by Simms), the extremities of which being twisted by strong clasp forceps, brought the ends tightly together in the loop, with the wire projecting from the wound.

The external wound was then brought loosely together by adhesive plaster, and the limb laid into a right-angle gutter splint, made of tin for the purpose, and extending from the axilla to the fingers. Water-dressing was applied over the wound.

June 17. Saw the patient at 9 A. M.; complains of some pain in the arm and shoulder. Some heat and swelling in the neighbourhood of the wound. Passed rather a restless night, although he took half a grain of morphia in the evening. Pulse, 105. Added infusion of opium to water-dressing, and prescribed rigid diet, mucilaginous drinks, and morphia—p. r. n.

18*th.* General febrile symptoms abated. Patient comfortable. Changed dressings. Arm considerably swollen; but wound looking well. Treatment continued.

28*th.* The case has progressed favourably. The wound is now discharging freely about the wire, and is closing at the extremities. The swelling in the limb generally has much diminished, though a prominent ridge has been thrown out at the part embraced in the wire-loop. The wire having become somewhat loose, it is twisted as much as the patient can easily bear.

July 25. To-day, while tightening the wire, it became detached, and was removed with the loop unbroken. The external wound has closed, excepting at the point where the wire projected. A well-formed callus seems to embrace the fracture, and the arm can be lifted from the splint without displacement, though the connection is yielding.

August 6. Since the last record, two or three small bits of bone have been discharged from the wound. Swelling has nearly disappeared, and the wound has closed, excepting a mere point. The prominent callus is also disappearing, though the consolidation is now so great that the bone will sustain the weight of the forearm without bending. Removed the splint and applied a *gum* and *chalk* bandage from the hand to the axilla, cutting a small aperture in the bandage opposite the wound for the purpose of dressing, &c.

8th. Having ascertained that the stiff bandage is well borne, dismissed the patient, with directions to begin to use the hand after two weeks, and to wear the bandage as long as it fitted closely, or the arm needed support.

The present condition of the limb will be seen by the following extract from a letter, dated December 7th, from Dr. B. F. Skinner, his attending physician :—

"I examined T.'s arm day before yesterday. It is evidently firmly united. He has worked constantly with a one-horse team for two months or more, drawing wood, gravel, goods from the depot, &c. He says the arm feels as strong as the other. I am unable to see why the cure is not complete."

RUTLAND, VT., January 7, 1860.

ART. V.—*Case of Ununited Fracture of the Humerus. Failure of Brainard's Operation, and of the Seton.* By C. S. FENNER, M. D., Memphis, Tenn.

ON the 4th of May last I visited, at Germantown, in consultation with Dr. J. M. M. Cornelius, his attending physician, Mr. William Walker, a gentleman, 35 years of age, who, in the month of December, 1858, was thrown from his buggy, and received a fracture of the left humerus. He was seen immediately by a physician, and the arm put in splints and tightly bandaged, so as to give him great pain. After a few weeks, no union taking place, the case came under the charge of Dr. Cornelius, who, with the view of exciting inflammatory action, placed the patient under the influence of chloroform, and forcibly rubbed the ends of the bones together, then, carefully adjusting them, applied splints and bandages to keep them in apposition. No benefit resulted from this treatment.

On examination, I found an oblique fracture, commencing four inches above the external condyle, and extending four inches up the humerus. The crepitus was distinct, the ends of the fragments easily separated, and no ligamentous union or rounding off of the ends of the bones. His general health had always been good. We determined on "Brainard's operation," as the one most simple, and at the same time promising the best chance of a cure. Placing the patient slightly under the influence of chloroform, I punctured with a small bistoury the soft parts about two inches above the end of the upper fragment, introduced the drill, and bored the upper and underlapping lower fragment. I then withdrew the drill from the bone, but not from the soft parts, and perforated the bones at another point, and repeated it, thus making three perforations through each fragment. The drill was now withdrawn, a piece of adhesive plaster applied to the wound, and the arm carefully put in splints and bandaged. Ten days after I visited Mr. Walker again, and finding he had suffered no inconvenience from the first operation I repeated it, introducing the drill at another point through the soft parts, and making three perforations through each fragment. This time the operation, after two or three days, was followed by considerable pain and throbbing, which Dr. Brainard thinks an indication that the process of bony union is going on. In thirteen days I again repeated the operation; this was followed by but little pain, and after waiting seventeen days, and finding no enlargement of the bone, or evidence that the formation of callus had begun, I operated with a larger drill, perforating the bones in every direction. The parts were then carefully adjusted, and the splints and bandages reapplied. No benefit resulting from this effort, we deemed it useless to persist further with the drill, as we thought we had given it a fair trial. So, waiting until August 9th, we determined on the use of the seton. I passed a piece of silk tape, half an inch in width, through the arm, between the fragments of bone. After remaining in twenty-three days, during which time the patient did not leave his bed, at the request of Dr. Cornelius I again visited our patient, and found such an amount of swelling, extending from below the elbow to the shoulder, and so much constitutional disturbance, that we considered it unsafe for the seton to remain longer, and so removed it. No benefit was derived from this treatment.

We now spoke of the propriety of excising of the ends of the bones; but the patient, after fully understanding the nature and extent of the operation, and the probability of a failure, did not feel willing to submit to further operative proceedings. From the obliquity of the fracture, it would have required unusually extensive incisions to have turned the ends of the bones out, so as to have sawed them off; and then to have given each end a directly transverse surface, the arm would have been shortened to the extent of the obliquity of the fracture.

Cases of pseudo-arthrosis are frequently met with that resist every plan of treatment with which we are acquainted; therefore, it becomes a matter of interest to determine which plan offers the best and safest prospect of a cure. This can only be decided by experiment; hence, the report of every case, and the treatment adopted, whether successful or unsuccessful, is of interest, with the view of determining that point.

ART. VI.—*Exsection of the Right Superior Maxilla, and a portion of the Left, for Disease of Long Standing.* By WM. H. GOTT, M. D., of Readstown, Wisconsin. (Communicated by JAS. M'NAUGHTON, M. D., of Albany, N. Y.)

I WAS consulted in April last by Peter Guist, aged twenty-three years, respecting a tumour of the right superior maxilla. From his own account, it appears that while residing in Morgan County, Ohio, ten years ago, a tumour of the size of a small pea was observed to be growing on the under surface of the jaw, behind the canine teeth, and attached to it by a delicate pedicle. After the lapse of a year or so, when the tumour had attained to the size of a small marble, a physician was consulted, who advised its removal without delay; it was accordingly snipped off by the scissors close to its point of attachment to the bone.

For three or four months nothing more was seen of it, and the hope was indulged that its removal would prove effectual; it, however, shortly reappeared at the site of the attachment of the pedicle to the bone, and increased in size gradually, so that by the end of a year, the alveolar process as far as the first molar tooth had become implicated.

In the fall of '51 or '52, he emigrated to Badax County, in this State. In '54 or '55, he submitted to an operation at the request of a physician, under the promise of a speedy and permanent cure. The operation had recourse to, as far as I have been able to learn, consisted in the extraction of a few of the teeth and the shaving off of the body of the tumour from the bone.

The hemorrhage following this operation was very profuse and was with great difficulty controlled; no benefit was experienced, for the tumour soon began to enlarge with more rapidity than formerly.

The foregoing history is imperfect in its details, but is as full as could be obtained from the patient. He first came under my observation in the early part of the summer of '57, soon after I commenced practice in Readstown, and his condition both general and local, was noted as follows:—

A tumour, commencing just below the orbit, with a slightly elevated and abrupt edge, extending downwards and projecting out of the right side of the mouth, which is drawn to the same side, distends the right cheek to a great degree, giving rise to deformity, and also much inconvenience to the patient; the entire palate portion of the maxillary and palate bones is involved in the morbid growth, which projects from the hard palate to such a degree as to force away the lower from the upper maxilla, and thus to render it difficult for the patient to masticate his food properly.

The tumour is distinctly limited to the jaw, and does not extend beyond the limits of the bone in which it has evidently originated; is painless to the touch; firm and unyielding, except at the conical-shaped point where it projects from the mouth; a sensation of deep-seated elasticity is here imparted to the finger, as if the tumour was covered by a thin shell of bone which yielded when pressed upon, and appeared to recover itself upon the removal of the pressure.

Its surface is nodulated, and covered with a thick white membrane, over which numerous small bloodvessels ramify, with one or two spots of superficial ulceration which furnish a little pus; pressure on the hard palate of the left side and on the tumour on the right side detected no yielding of the bone; in fact, in the latter situation, the sensation of bony hardness was imparted to the finger; the teeth, three or four of which remain, have become irregular and projecting, but are still firm in their sockets.

The growth of the tumour thus far has been slow, unattended either by pain, hemorrhage, or any appreciable derangement of the general health.

The patient was advised to submit himself without delay to the operation of excision of the greater portion of the maxillary bone, as the only course which would afford him any chance of relief. He, however, objected to undergo such an operation, and for no very satisfactory reason, and consequently passed temporarily from under my observation.

In April last he reapplied to me, fully satisfied his case would soon be beyond surgical relief if let alone, and willing to undergo any operation which would afford him a chance of his life. A careful and minute examination of his case was had, when it was found that the chances of a successful result were not as favourable as at the time of his first application. The tumour had made considerable progress, and was now found to embrace the following parts: Commencing at the inner angle of the eye, its abrupt and well defined edge, which at the first examination two years previous, was felt half an inch below the margin of the orbit, was now perceived to be on a level with it, and to reach to the junction of the maxillary with the malar bone, also to have encroached upon the side of the nose; the alveolar ridge of the left maxilla as far as the first molar tooth was found to have become implicated in the disease, as well as a portion of the hard palate of the same side to about one-third of its extent.

The tumour in its general appearance had not changed materially, excepting in its increase in size, and in the fact of its surface having become somewhat more nodulated with a greater number of vessels of larger size ramifying over it.

With the view of ascertaining, as far as possible, the nature of this growth before resorting to any operation, the exploring needle was introduced into its most prominent part, where the sensation of indistinct fluctuation was first perceived, and it appeared to enter a softish mass without resistance; it was then found that a considerable degree of *lateral motion* could be given to the instrument; a small quantity of blood followed the withdrawal of the instrument; the remaining portions of the tumour were explored in the same way, but into which the needle entered not without force, and into a dense substance where no *lateral motion* could be obtained, except with such a degree of force as would have been unjustifiable to employ.

For the past few months his general health has been on the decline, and is still so, owing partly, as he thinks, to the imperfect mastication of his food, and partly to its quality, it having been of a liquid nature mostly for some time; he is now somewhat emaciated, and incapable of the physical exertion necessary to earn a livelihood.

I was well aware of the importance of a correct diagnosis respecting the simple or local and non-malignant nature of this growth, also of the inadvisability of resorting to an operation should this be judged a case of medullary sarcoma. The diagnosis as to the growth being of the first variety was based upon the following facts:—

1st. There has been but little constitutional derangement attending the growth and development of this tumour from the first; that which has of late manifested itself is undoubtedly due to causes independent of malignancy.

2d. The tumour is distinctly limited to the maxillæ, with well defined boundaries, and unlike a malignant one, which for the most part incorporates itself imperceptibly with surrounding parts. Its slow uniform growth, its firm unyielding nature (except at one point), the absence of pain at all times and hemorrhage, its lobulated surface, and the fact that no fungous growth has sprouted from the superficial ulcerations, nor any fetid discharge escaped from them; these circumstances, independent of the light derived from the employment of the exploring needle, combined together, render it probable that the disease is local (if not entirely so, and if from a simple, it has insensibly merged into a malignant form in part, such a change is as yet in its early stage); and that the performance of an operation without delay would be in accordance with good surgery, and followed by a permanent cure.

The simple nature of this tumour having been determined upon, I advised the patient to be operated upon at an early day, and the 4th of May, 1859, was fixed upon. After a few days of preparatory treatment the operation was performed as by appointment, as follows : After partial anæsthesia had been induced by a mixture of equal parts of chloroform and ether (it was not deemed prudent to put the patient under the full effect of the anæsthetic, from fear that death from strangulation from the blood passing into the windpipe might take place), an incision was made from the external angular process of the frontal bone to the corner of the mouth. A second was then carried from the nasal process of the superior maxillary bone to the mouth near the mesial line. The tumour was now laid bare, by dissecting upwards the tissues of the cheek to the orbit into which the dissection was pursued, and its tissues detached from the floor.

The nose was next separated from the bone and held over to the left side by an assistant. This dissection completed, the operation was suspended for a few minutes, in order to secure the arteries, and to allow the patient to recover from the effect of the anæsthetic.

The tumour was now fully exposed to view. The operation having been resumed, the malar bone was divided near its middle by the metacarpal saw—then the nasal process of the maxillary by the bone-cutters and chisel; the saw introduced into the nostril, the alveolar ridge was sawn through, and the hard palate to the attachment of the velum palati. The tumour being now forcibly moved and loosened by the finger introduced from behind, was lifted out after a little delay in dividing its remaining attachments. The large cavity thus exposed was immediately filled with small sponges to arrest the profuse hemorrhage, which done, the implicated portion of the left maxilla was separated by the saw and bone-cutters.

The patient, much exhausted from loss of blood together from the shock of the operation, was allowed a little brandy with thirty drops of laudanum, which, with the application of dry warmth brought about gentle reaction in a little while. The wound was allowed to remain open exposed to the air for nearly an hour, the more to guard against secondary hemorrhage, when the cavity was filled with balls of lint and the flap stitched up, and the patient removed from the table to his bed. The only dressing applied consisted of pledgets of lint wet in cold water. Three or four hours after the operation several small clots of blood were thrown off from the stomach, when an additional dose of opium was given to allay restlessness and pain. In forty-eight hours after the operation the sutures were removed and union by the first intention had taken place throughout the incisions. Under the free use of animal broths the patient gained in strength so rapidly as to be able to sit up out of bed on the eighth day, and at the end of another week to be about on his feet.

The general condition and health of the patient six weeks from the time the operation was performed, when he passed from under my care, appeared to be good, and were improving from day to day. The partial paralysis of the cheek consequent upon the division of the branches of the facial nerve gradually wore away, and its sensibility became fully restored. At the time of writing this report, nearly four months after the operation, the general health of the patient is better than it had been for the past year or two, and he is now engaged in his vocation, that of a farmer. His articulation is very distinct, and the process of mastication can be performed without difficulty.

I will now describe the appearance of the tumour as accurately as possible. Its weight three or four hours after the operation, was seven ounces and a half. Its greater portion was composed of a dense, more or less fibrous substance of a whitish and yellowish white colour. Its central portion, where the indistinct fluctuation was perceived before removal presented a very different character, and was made up of a structure of a soft medullary nature, and very vascular. Beside the thick membranous capsule investing the tumour, and beneath it, a thin lamina of bone was spread out over its circumference, constituting the walls of the antrum.

Note.—In a letter to Dr. M'Naughton, dated August 29th, 1859, Dr. Gott adds the following postscript:—

"I have seen my patient several times lately; he says his health is better at present than it has been for a year or two past. He is now earning his own livelihood at his occupation, that of a farmer. The parts have entirely healed, and with the exception of some falling in of that side of the face and a slight drawing down of the lower eyelid, no evidence that such a tumour had been removed from the face would exist."[1]

ART. VII.—*Exsection of the Superior Maxillary, together with the Malar and Palate Bones of the Right Side. Recovery.* By W. J. LEAKE, M. D., of Yazoo City, Miss.

THE subject of this operation was a negro man, aged about 25 years, the property of the Hon. A. P. Hill, of Madison County. He was placed under my charge about the 1st June last. At that time a large tumour occupied the right side of the face, the right eye being much protruded, the right nostril entirely obstructed by the tumour, which had also dislocated the os palati of that side, together with the corresponding palatine process of the maxilla along the posterior two-thirds or three-fourths of the mystachial suture—the anterior part of the suture being intact. The molar and bicuspid teeth of the right side had been removed some time previously. A foul discharge issued from the right nostril, and from an opening in the alveolar aspect of the tumour. The opening would have admitted the end of the little finger, being partly occupied by a tough, white substance, which came away in a few days, and proved to be a portion of the periosteum which had lined the antrum. The end of a silver male catheter was passed about an inch up the opening. The patient was much emaciated, and so much debilitated that his gait was tottering and unsteady. The pulse was feeble and frequent. His mental condition approached imbecility; appetite impaired. I have not been able to get a satisfactory history of the case previous to the time it fell under my observation. As nearly as I could ascertain, the disease commenced some two years previously, at which time the patient complained of great pain in the teeth and jaw. The teeth were extracted, but no relief obtained. When brought to me he did not complain of much pain.

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[1] It is to be hoped that Dr. Gott will report the subsequent history of this case, as too short a time has elapsed since this operation to determine its result.—ED.

For the relief of the patient, an operation consisting in the entire removal of the tumour was clearly demanded; but his condition at the time forbade any surgical procedure. He was, therefore, put upon a tonic, cordial treatment, with a nutritious diet, in order to prepare him for an operation at a future time. The local treatment consisted of detergent and astringent injections of the right nostril, and opening in the tumour. Under this treatment he gradually improved; the opening in the tumour filled up by granulations; and by closing the left nostril and mouth, and making a forcible expiration, air passed through the right nostril with a hissing sound; but a probe could not be passed.

The patient having improved sufficiently, the operation was performed on the 18th of August, and was in nearly all its steps the one advised by Mr. Liston. My partner, Dr. Barnett, and Drs. Kidd, Wilson, and Peake, were present. A cut, commencing near the inner angle of the eye, was extended down the side of the nose, beneath the ala, to the ridge bounding the sulcus of the lip, making the division of the lip through that ridge. Another cut, commencing at the same point with the first, was carried beneath the eye, in a line with the fibres of the orbicularis muscle, to a point corresponding to the transverse facial suture. The ala of the nose was next cut up from its connection with the tumour, and the soft parts dissected off the tumour and turned back. In order to command the tumour posteriorly, it was found necessary to make an additional cut, commencing at the terminus of the last, and extending along the line of the zygomatic process of the malar bone, something over an inch. The lateral incisor of the right side having been extracted by H. Lawrence, D. S., I proceeded to notch the alveolar process with Liston's cutting pliers, and to divide the palatine process through the roof of the mouth. The nasal process was then severed, followed by the division of the zygomatic process of the malar bone, and, lastly, the malar and frontal bones were severed through the transverse suture. The bony connections of the tumour were next all separated. The forceps was now applied, one branch in the orbit, the other in the mouth, and an attempt made to dislodge the tumour. In this, however, I failed, the tumour crushing under the pressure of the instrument. It was found necessary to pass a broad chisel behind the tumour, after which it was dissected out with the knife and curved scissors. The lips of the wound were brought together, and secured by the interrupted suture, except through the lip, which was secured by two silver pins. The cheek was stuffed with a silk handkerchief.

Very little blood was lost during the operation. Not exceeding f℥xvj, I think. No vessel required a ligature.

The operation was done with the patient in the sitting posture, under the influence of chloroform; the head being supported by an assistant.

On account of the still rather feeble condition of the patient, it was deemed unsafe to make a profound anæsthetic impression upon him with chloroform; consequently, the operation was frequently interrupted by the struggles of the patient, and delayed by the repeated administration of the anæsthetic. Notwithstanding the struggles of the patient, he had no recollection of the operation when it was concluded; and shock to the nervous system was effectually prevented.

On the sixth day after the operation the sutures were all removed, and the wound found healing by first intention, except half an inch beneath the external angle of the eye, where apposition had been disturbed by the dragging downwards of the cheek.

For two or three days, commencing about the second day after the operation, the patient had some fever, and complained of some pain in the head; but made a rapid recovery, and about the ninth or tenth day was walking about the yard.

There was difficulty in deglutition after the operation, but much less than I anticipated. There was also great difficulty in articulation, but it gradually became better, and after the adjustment of a gold plate, by Dr. H. Lawrence, the boy articulated very well.

I was informed a few days since, by Judge Hill, that the boy's health was unexceptional. So far there seems to be no disposition to a return of the disease.

As to the character of the tumour, I cannot pronounce confidently. The bones had been absorbed to a great extent, leaving little more than mere shells or scales. The tumour seemed partly granular, and partly fibrous, with an admixture of fat. In its removal, I cut, in the language of Mr. Liston, "beyond the disease."

The incision through the lip was done along the line bounding the sulcus, thinking that the deformity would be less. Whether it is so or not, I am unable to say; but the *extent* of the cut was somewhat less than it would have been had it been carried beneath the column of the nose, thence through the sulcus.

For the purpose of stuffing the cheek after this operation, a thin gum-elastic bag, arranged so that it might be inflated after its introduction, would be an improvement on the present plan of stuffing with lint. In its flaccid state, it would be easy of introduction; and, having discharged the air from it, it could be easily removed—while its texture would prevent it from being caught on any salient point of bone. Besides these advantages, it would not absorb the secretions of the mouth and cut surface; and, consequently, would be more cleanly and comfortable.

In performing the dissection beneath the globe of the eye, I derived advantage from the use of an instrument, by which this organ was shielded from danger, and at the same time held up, so that I could see how and where to cut. The instrument was made by an ingenious blacksmith, after a model cut from pasteboard, and moulded, while wet, to fit the floor of the orbit. It is of silver; in shape much like a teaspoon, with its bowl truncated, and the handle curved in the shank, so that it stands at nearly a right angle with the bowl, having its extremity curved, so as to rest securely over the thumb. It is held between the thumb and first two fingers of the hand, while the remaining fingers rest firmly on the forehead of the patient; the assistant inserts the truncated bowl beneath the globe, as the tissues are divided by the knife.

Art. VIII.—*Animal Chemistry, and its Relation to Therapeutics.*

By J. L. Teed, M. D., of Mendota, Ill.

In nothing is the science of the present day so different from that of all former periods with which we are acquainted as in its utilitarian tendencies, and in its requirement of practical demonstration; and this tendency has been gradually advancing in proportion as it has demonstrated the superiority of a foundation established on fact, to one resting merely on theory or hypothesis. The acute mind of Magendie was long since convinced of the insufficiency of the latter, even although propounded by a Bichât, and of the absolute necessity that physiology should be the offspring of experiment alone, and physiology soon found in animal chemistry the only true exponent of its phenomena. The chair of experimental physiology in Paris is the result of that conviction, and M. Magendie's pupil, M. Claude Bernard, is giving fresh demonstrations of the correctness of these conclusions. The researches of M. Brown-Séquard are further proofs of the same truth; and the doctrines elaborated by the researches of these, and others in the same direction, are as much the property of animal chemistry, as that the forces which operate on inorganic matter belong to the general chemist. While animal chemistry embraces the nature and composition of the animal solids and fluids, it includes also the laws and sources of their formation and the forces by which they are regulated and maintained or removed beyond the sphere of the organism.

The researches of the German schools, however, have perhaps been productive of the greatest results. Among these it would be invidious to particularize, with the exception of one, who may be said to be the father of this branch of science, and the name of Justus von Liebig should be a household word to the student of nature, whether of the animal, vegetable, or mineral kingdoms.

To his individual mind animal chemistry owes much—very much; and to his teachings and example, and to the direction which he gave to the minds of so many others, a very large proportion of our present knowledge is due. Deduct the teachings of the last twenty-five years contributed by Liebig and his pupils, and there remains but little of animal chemistry, over what was known twenty-five years ago. If, also, the advance of science in the past quarter of a century has been so great from a beginning so numerically small, what may be expected as the result of the investigations of the next quarter of a century, with its ever-increasing army of investigators; then it was no very difficult thing to keep pace with the general improvement, now the fresh researches in one branch alone constitute a study of themselves, whilst the whole are absolutely necessary to enable the physician to do his duty to his patient and justice to the profession of which he is a member.

We must not forget, however, that the science is yet too little advanced in the details of all its branches to furnish us with that sure and unerring light which leaves the physician nothing further desirable to guide him in the mysterious paths of therapeutics, and to enable him at all times to combat successfully the ravages of disease. Nor must we hope that this result will ever be gained. To avert death from a mortal is a simple absurdity; fit, indeed, for the boastings of a Paracelsus, who died with his "elixir vitæ" in his pocket, a monument of folly; but to postpone the event of dissolution twixt soul and body; to cut short in their commencement those series of morbid actions and changes, which, if continued, would terminate in death, so that this last may be the result only of the laws of being, or, where this is impossible, to smooth the passage to the grave, are the great ends which the physician proposes to accomplish, and the decreasing mortality of many diseases, and the increasing duration of human life, testify to the advancement of scientific or rational medicine.

Now, in what does the rational physician differ from the empiric? The latter uses a remedy or a course of treatment, because in such cases it has been found serviceable. Experience has been his guide; and to this we do not object, when in any case we have reached the limits of scientific or rational knowledge. This has been the discovery and ground of introduction, and consequent use or disuse of nearly all the articles of our materia medica; nor do we propose to throw away this guide in the treatment of disease, until we have a better to substitute for it.

But when experience has recommended a certain course of treatment in any particular disease, what shall we say of the unsuccessful cases? They are not recommendations of the treatment; but they must not be thrown aside. The experience derived from them may furnish no indications for the next case; no ground for an alteration of the treatment; and to treat the next case in the same way, is to fly in the very face of that principle vaunted as a guide. The empiric, however, has nothing left but to pursue the same course. In all such cases, and every practitioner of medicine and surgery knows their frequency, bringing with their recollections feelings of sadness and vain regrets—in all such cases a plan of investigation which promises to throw a gleam of light across the darkness, should be hailed with delight and welcome; and the well-balanced mind will avoid the two evils of expecting too much from it on one hand, and rejecting a valuable auxiliary on the other.

The rational physician will, therefore, use experience as his guide, when he has no better; but he will at the same time endeavour to extend his knowledge of the modus operandi of remedial agents, of the nature and properties of the organism, and of the laws governing it in its whole and in its varied parts, and of the variations induced by external or internal causes. By these means experience, when correct, will be confirmed; when erroneous, will be corrected.

As a whole, therefore, and comprising all these branches of research, animal chemistry presents itself to the rational physician, offering him a reliable guide in all the cases over which its investigations have been carried; and if these be yet few, their importance demands attention to the subject, and is the promise of a future and more abundant harvest.

Animal chemistry, as has been before remarked, is so very closely allied to animal physiology, that the latter may be said to be embraced, at least to a very considerable extent, in the former; in the same way as the forces which cause changes in inorganic matter belong to inorganic chemistry, the fact of these forces being more numerous, more complex, and less easily investigated, is no sufficient ground for their exclusion.

The branches, therefore, belonging to animal chemistry are that portion of embryology which treats of the primary constitution of the embryo and its appendages; the period and manner of appearance of fresh elements in it; the successive steps in its formation, manner of growth, sources of nutrition, and internal changes; distribution of effete matter, if any; modifications from abnormal or other causes, producing alterations of development, disease, or death. In this department of the subject very little is yet fully made out, as regards the chemical changes and modifications undergone by matter while it is being converted into the perfect embryo; these, however, are most important, and are receiving a large share of investigation.

The chemistry of the tissues is another and an important division of this subject, and one which hardly needs more than mention, as it must be evident that the most minute acquaintance with the composition of any body, in its whole and in its parts, is a necessary prerequisite to its complete study.

The metamorphosis of tissue is so intimately connected with two other divisions, viz., the chemistry of food and the chemistry of the excretions, and when to these have been added the chemistry of the secretions and of nutrition, the importance of the subject looms up before the mind in its vastness and sublimity; the force of the nervous system capping the whole, and impressing the reflective mind with its unspeakable grandeur.

Follow on, then, the mutations from ordinary causes which constitute disease, the effects of extraordinary ingesta, *i. e.*, of those not food, such as of medicines and poisons, from cold water to the most active and deadly matters, and a subject is mapped out having no parallel amongst material things in its importance to the welfare of humanity.

A great difficulty in the outset of this subject, which presents itself to the investigator, as he will find the matter treated of by various authors, is the assumption of "means" as standards—take, for instance, the composition of the blood: one analysis is made, giving so many parts by weight as the amount of water; another is made, giving a result somewhat different, and so on with the other constituents—the mean is then calculated for each constituent, and received as the proportional quantity for such constituent in the condition of health, or of any one disease, as the case may be, and so on through the secretions and excretions, &c. There is a very important reason why this method of investigation is injurious, and even fallacious.

We will allow that the composition of the body, or of any part of it, does vary in different individuals; yet in every individual there are four points which must be complementary of one another to make up the whole, and have therefore fixed relations to each other: these are first the composition of the body itself, fluids and solids; the composition of the food, that of the excretions, and the metamorphosis of tissue in nutrition and secretion. The weight of the body taken at any certain time, say January 1st plus the weight of food and drink taken and air inspired up to say February 1st, must equal the weight of the body on February 1st plus the weight of the excretions from January 1st to February 1st. It is also found that any alteration in diet will produce a corresponding alteration in the constitution of the excretions; it must, therefore, produce a corresponding alteration in all the parts lying between the food, digestion, and the excretions; nor should we *à priori* expect to find the *tout ensemble* of a man living on a succulent vegetable and fruit diet, cereals and animal matters, milk, eggs, &c. &c., being only very sparingly used, or entirely abstained from, the same as in the case of another man living almost or altogether on cereals and flesh. The particular diseases to which the followers of certain dietaries, whether from necessity or choice, are subjected, or from which they are exempt, are striking illustrations of the same fact. Connect the Icelander feeding on blubber with his freedom from phthisis, and liability to diseases of the skin and bowels; the eaters of maize in hot countries, with the liability to skin disease; the liver on salt food, and the prevalence of scurvy; the butcher and publican, and an immunity from phthisis; and so on through examples which must occur to all, and the intimate material connection between these four points become strikingly evident.

If such then be the fact, it is evident that in any given case the chemical constitution of the blood requires an acquaintance with the food out of which that blood has been formed, and also of the excretions during the time, by which its formation has been regulated, to say nothing of the particular growth of this or that tissue.

Again, as there are four excretions—those of the lungs, kidneys, bowels, and skin—and as these are complementary of one another, according to the activity of each, varying continually in the same individual, even while using a diet the same both in quantity and quality, according to the ever-varying impressions of external causes, such as rest, motion, heat, cold, &c., as also from internal causes of extreme mobility, it will necessarily follow, not that urine or sweat, or expiration or feces, have a variable composition, but they have a composition varying according to fixed laws, according to the complementary variations of each particular case, *i. e.*, that their composition is fixed, the circumstances of their formation being the same; and in order that the analysis of either excretion may be made of much value, those of the other three, of the food from which they have been derived, and of the blood or medium of formation also, should be given.

The main object in the study of animal chemistry should be to reach the laws under the operation of which the various changes in the body occur first in those of more general application; and then, as the modifying circumstances are ascertained, those of more limited or special range. The special composition of such an excretion, of such a fluid, of such a solid, is of far less consequence than the full knowledge and comprehension of the circumstances under which it was formed, and of the laws which regulated the due and proper fulfilment of those functions of which the substance in question, whatever it may be, is the result.

For instance, take the urinary secretion; suppose we know its normal composition most accurately, and on examining a sample we find an alteration in some most important particular; thus let the urine under examination contain a large amount of sugar. The first question which arises is, What are the laws governing the formation of sugar in the economy? Where is it formed? From what is it formed? What are the residuary or complementary products of its formation, or is it itself a residuary product? Whence are its derivatives obtained? What should be the proper quantity formed, if any? What is its normal destination and the purpose it is intended to fulfil? Is its appearance in the urine the result of its non-disappearance elsewhere, or the result of excessive formation, or the result of previous retention? &c. &c. Each one of these questions, though most physiological in itself, requires a chemical investigation to supply the answer. The same course of inquiry reaches far and wide through the whole course of therapeutics; and let any one consider these questions carefully, then look at the empirical treatment of diabetes mellitus, with the usual termination of the case, and answer to himself, How often would the result be different if these questions could be satisfactorily answered? This example is a striking and prominent one; but many are the cases in which a large amount of suffering might be relieved more effectually than at present, were the knowledge of this subject more extended.

The chemistry of food and drink is a very important branch of this subject. From the milk at its mother's breast to the multifarious diet of mature life has to be manufactured a constant stream of nutritive element, supplying the various tissues with their means of nutrition and growth. The processes by which these articles of food are converted into blood are of the first order of importance, and closely connected with them are the means by which superfluous or otherwise disorderly elements are removed. The body may be said to be made up of certain elements, C,O,H,N,I,P,Cl, K,Na,Fe, and some few others of less importance, in varying proportions, the matters excreted from it are composed of the same ingredients in more definite and fixed combinations. The food must, therefore, have the same elementary composition, and in the same proportions, as the excreted and retained matters; and any other element, if foreign, or any one of these, if superfluous, must either be rejected, or cause a greater or less alteration if retained. If rejected, it may undergo decomposition in the system, or may give rise to decompositions, fresh groupings of elementary atoms occur, and the processes of life suffer derangement from the presence of foreign bodies.

In health, therefore, it is important to know the composition of the food consumed, in order to be enabled to calculate on a harmonious working of the whole system, in its varied parts of digestion, nutrition, and secretion, and to be able to supply any particular emergency which may arise from extraordinary circumstances. But of how much more consequence is this in disease. How important to know how much and what kind of nourishment should be supplied to meet the wants of the system and leave no surplus, the nidus of further mischief. How important to be able to adjust the kind of food supplied to the assimilating powers of the invalid. How often in chronic cases do we find that a depraved blood stream is the cause of the evil, having its *Fons et origo* in some mal-adjustment between the food taken and the processes of assimilation; when, having gently increased the excretions for a short time, so as to remove any accumulation of peccant or ill-assimilated matter, we slightly shorten the supply of food, modulate its quality according to the circumstances of the case, use some gentle alterative, and find our attentions rewarded by the grateful patient becoming a confiding friend? Were this subject more investigated, and better understood, the public would never turn homœopathic, to avoid being drenched *usque ad nauseam*, and patients would soon understand that the advice of a physician is often of more value than his medicine.

The changes undergone by the food in digestion have been subjected to much investigation, and considerable light has been thrown upon them. Indeed, on reading some authors, it might be supposed that our knowledge of this subject was complete, or nearly so. This, however, is by no means the case; and the changes induced in nearly all kinds of food, before they are converted into serum and corpuscles, are but little more than conjectured. The difficulty attending the whole investigation is so immense, owing chiefly to the extreme mutability of the matters formed, and the impossibility of obtaining them in an isolated state, by our present methods of analysis; our inability at present to measure the effects of nervous influence on the production of healthy or morbid transitions, together with our inappreciation of slight disturbing causes, that our knowledge is yet but little more than inceptive. We have, however, this encouragement, that if so much may be done with so little knowledge, what may we expect when our acquaintance with the subject is more extended, and what inducements does it hold out for its assiduous cultivation.

The relations of animal chemistry to nutrition and growth is most intimate and important; the body increasing in weight, in different proportions in its different parts, requires an attentive consideration; while in mature life the due adjustment of its varied constituents is necessary to full and continued vigor, with a strong resisting power against disturbing influences. Errors in nutrition lie at the root of many diseases, and the most successful treatment of one of the most destructive, scrofula in its varied forms, is a treatment almost entirely based on this foundation, with reference to assimilation and diet.

The chemistry of the excretions has received the most attention, chiefly, perhaps, from these being so very sensibly altered in disease, and the readiness with which they have been received as exponents of the morbid changes going on in the system. Without wishing to depreciate their actual importance, they have received more than their relative share of consideration. They are most certainly intensely altered in morbid conditions of the system, and do afford most valuable indications of such conditions. But the idea of combining a certain state of any particular excretion with a particular condition of morbid action, and making that as the entire basis for treatment, has often led to most disastrous results, by withdrawing the attention of the physician from the system to a symptom, whereby the disease has continued its course unchecked—fortunately for the patient if unaggravated by the treatment employed. Such an occurrence could never happen if all the outlets of excretion were attentively examined, and the compensating relations of the excretions themselves considered; then attention being paid to the parts retained as well as to those discharged, and to the sources from which these all are derived, would put the physician in possession of all the facts of the case, and lead him to a correct conclusion, both as to the nature of the malady and its treatment.

Diseases may be considered as grouped into certain families: thus, we may enumerate pyrexia or fevers; phlegmasia or inflammations; neuroses, or those which have an origin or seat chiefly in the nervous system. Besides which there are certain diseases of the chylopoietic viscera and skin, not, perhaps, capable of being classified under either.

In the case of the pyrexiæ the utmost importance attaches to a correct understanding of the chemical changes which should occur in health, and which do happen in the disease, and to the influence of remedial agents in preventing, counteracting, and removing those morbid products which keep up the disease, and by their presence and decomposing influences induce still further disorganization. The treatment of fevers is essentially a chemical process. We use evacuants to remove accumulations of effete matters, and thereby purify the residue; we act on one organ to relieve the system of matters which should have been discharged by another; we adjust our supplies of nourishment to the capabilities of the system to assimilate; we supply stimulants to maintain the nerve-force under depression; in short, all our proceedings are just as chemical as the mixing an ore with a flux to obtain the metal in a pure and separate state; or as the proceedings of the artist to produce his photograph or his daguerreotype. We examine the excretions with the view of finding their chemical constitution, and the knowledge of the chemical changes induced by remedial agents enables us to understand the success which follows seemingly opposite modes of treatment; the better we are acquainted with animal chemistry, with the greater facility shall we be enabled to adjust our treatment to the exigencies of the case, and the greater will be the success attending our efforts.

The knowledge of the *modus operandi* of our remedies is similar to the acquaintance with reagents of the chemist, and the more they are understood the less shall we be guilty of "pouring medicines of which we know little into a body of which we know less."

In the case of the phlegmasiæ the relations of chemistry to therapeutics is similar, although not quite so prominent. The formation of coagulable matter, and its prevention by means of mercurials, &c., offer a series of phenomena known to experience, but not capable of explanation by any chemical laws without the introduction of hypotheses, and in such explanations hypotheses are not admissible; and the antiphlogistic treatment is received on the same grounds chemically as the use of ferments, &c., in which the knowledge of the fact is made subservient to our purposes, while the *modus operandi* still remains a subject for investigation. That portion of the treatment which relates to the febrile portion of the phenomena and the functional derangements may be referred to the remarks on the treatment of pyrexia.

The neuroses present still greater difficulties to the investigator, both with respect to the chemical changes in the tissues and the nature of the action of remedial agents. The action of the alkaloids, of the oxides and salts of metals, is enveloped in the deepest mystery. Yet, the use of iron, arsenic, silver, iodine, quinia, morphia, strychnia, &c. &c., is so well understood, that they are safe and reliable agents in the hands of the educated physician, and disease disappears so continually under their use, that any question of cause and effect ceases to be entertained. In all such cases there is a vast field open for research, and it will be only as the chemistry of the subject is cleared up, that our knowledge of the matter will be substantially increased.

The diseases of the chylopoietic viscera offer some of the most striking examples of the application of chemical knowledge to the treatment of disease, and many of the primary and secondary disturbances in indigestion are easily controlled in a manner perfectly in accordance with chemical facts. The use of alkalies in cases of acidity, of pepsine to expedite the process of digestion, of the hyposulphites to prevent fermentation with evolution of gas; to say nothing of the adaptation of food to the ability and condition of the digestive powers, or of the employment of exercise to promote the consumption of oxygen, and consequent evacuation of foreign matter, and of the other hygienic means, are striking examples of the advance made by rational medicine beyond the range of empiricism.

Chronic diseases of the liver and of the intestines are only in part amenable to chemical treatment, being mostly influenced by remedies used empirically. The same may be said of diseases of the urinary organs, and still more so of those of respiration and of the skin.

Yet, when we view the cases of spontaneous cure which so frequently come under our observation, and those cases in which "nature" accomplishes a cure in spite of our remedies, we cannot fail to be struck with the fact, that the conditions of health and disease are merely expressions of material changes, and that there are laws governing these changes taking place within the body of which we are yet entirely ignorant; and that it is only as our knowledge of the organism in all its parts and in all its workings becomes perfected, that we shall make real progress in the treatment of its diseases. Experimental chemistry must be our Œdipus in the solution of these problems.

Art. IX.—*On Possible Ultimate Causes of Disease.*
By M. C. Lea, Esq.

There are, perhaps, few branches of medical science which are surrounded by so many difficulties, or in which so little has been accomplished, as the investigation of the ultimate causes of disease. The subject offers a wide field for study, which would no doubt well reward the time and labor which might be expended upon it. Raspail, in spite of his eccentricities, made some curious and ingenious observations and suggestions, though he doubtless erred in looking too far for his causes, and referring too much to remote and insufficient agents, such as inhalation of sporules, seeds, &c., and ingestion of particles acting hurtfully by mechanical agencies and other similar accidents. Those to which it is here proposed to refer, are in their nature obscure and difficult of recognition, but of sufficient gravity to explain all the effects which may be supposed to arise from them.

It is possible that there may exist abnormal states of the system, in consequence of which the digestion of certain aliments may take place in an abnormal manner. It is not here intended to refer to indigestion which in many cases may even be a wholesome and beneficial effort of nature to prevent the assimilation of a particular kind of food which the actual condition of the body may render injurious, but to an action of a very different character. Food which may in normal conditions of the body yield products of digestion of the most nutritious and wholesome character, might equally, in certain unfavourable conditions of the digestive system, yield more or less active poison, which, though generated even in very small quantity, may gradually go on with a slowly increasing toxical effect until the whole system is disordered by it. Disordered digestive functions of this kind may perhaps be the key to many of those inexplicable changes of health, in which the system is gradually broken down without any visible cause.

One or two examples will be sufficient to illustrate the author's meaning, it not being his intention to enter upon speculations belonging less to chemistry than to chemical physiology, but rather to suggest how much invaluable information might be obtained by subjecting parts of the body after death by disease to a rigid chemical analysis with a view to detect the presence of poisonous substances generated in the body itself out of aliments innocuous in a normal condition of the functions of digestion.

Butyric Acid.—This acid is an active poison. M. Isidore Pierre[1] mentions a case reported to the agricultural society of Caen, in which a number of horses had suffered severely by drinking water out of a certain pool, two of the number having died in consequence. The analysis of the water of this pool, which was in the neighbourhood of a farmyard, proved the existence of butyric acid in a saline form in it, and other similar cases were ascertained. No other substance could be detected in the water which could have had a poisonous effect upon the animals. Some cider which had proved very injurious to the health of those who had used it, was found on examination by M. Pierre to contain considerable quantities of butyric acid, but no other substance to which the bad effects could be ascribed.

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[1] Comptes Rendus, Aug. 22, 1859. Ext. Chem. Gaz., Dec. 1859.

There is no reason to doubt that butyric acid might, under abnormal circumstances, be produced in the body in considerable quantity. Many substances which, under normal digestive functions may be favourably assimilated, might in peculiar states of the body, scarcely amounting in themselves to absolute disease, be converted into butyric acid, which, according to Leopold Gmelin, is produced under the following circumstances:—

Starch and sugar, in contact with proteine substances, are gradually converted into butyric acid, with or without previous conversion into lactic acid. Grape sugar in solution, which does not of itself ferment, may be made to do so by immersion of bits of paper previously exhausted by chlorhydric acid and water, with production of butyric acid. The residue from the manufacture of potato starch, which contains considerable quantities of starch, if mixed with small quantities of animal matter, undergoes fermentation in two or three days, with production of butyric acid. Large quantities of the same acid are formed when starch remains in contact with animal matters for a few days, and under other circumstances which might occur in the human system.

In confirmation of this view, it may be mentioned that butyric acid has actually been detected in the gastric juice, and in the matter from a cancer in the stomach. Butyric acid may even be in very small quantity an occasional or even normal constituent of certain parts of the body. But under unfavourable conditions of the digestive functions it may easily be produced in sufficient quantity to exercise a noxious influence on the organism.

Butyric acid is in all these cases an oxidation product, as is proved by the fact that the same substances, starch, sugar, gluten, &c., yield it by treatment with nitric acid, sulphuric acid and peroxide of manganese, or chromic acid. If, therefore, it could be demonstrated that any particular form of disease was occasioned by the presence of butyric acid, such disease might no doubt be successfully combated by deoxidizing agents, such as sulphur baths.

Cyanogen Compounds.—Animal matters decomposed by heat in the presence of fixed alkalies give rise to cyanogen compounds. The waste nitrogen of the system is chiefly eliminated as urea, isomeric with cyanate of ammonia. Under abnormal conditions of the functions active cyanogen compounds might be generated instead of the comparatively inert urea. As sulphocyanhydric acid appears to be in very small quantities a normal product of the digestive functions, which may easily be seen by the action of a ferric salt upon the saliva,[1] it is by no means impossible that under favourable circumstances larger quantities of this acid might be generated. Upon the animal organism it acts, like cyanhydric acid, as a narcotic poison.

Formic Acid.—This acid is capable of being formed, under favourable circumstances, by a very large proportion of the substances which we use as food. Starch, sugar, gum, casein, fibrin, albumen, all yield it by the action of oxidizing substances, in most cases by treatment with sulphuric acid alone. That such a reaction is capable of taking place in the system is proved by the fact that the presence of formic acid has been detected in chopped human flesh. Should circumstances arise to give undue activity to the functions which produce it, the materials are everywhere most abundantly present in the system for the production of this highly poisonous acid.

Not only substances taken as food may, under peculiar circumstances, be converted into poison, but medicines administered may, by peculiar and unusual decompositions, be converted from substances comparatively innocuous into dangerous poisons. Thus calomel may, possibly, at times, under the influence of the free chlorhydric acid of the stomach, give rise to the production of a certain quantity of corrosive sublimate. In the experiments of Mialhe, quoted by L. Gmelin, calomel exposed to the action of free chlorhydric acid was converted in the proportion of from two to three per cent. to protochloride. This may perhaps explain the unexpected effects at times produced by the administration of that medicine. Chloroform might, by the substitution of oxygen for chlorine and taking up an atom of water, be converted into formic acid, the hydrated teroxide of the radical of which chloroform is the terchloride. This change actually takes place by the effect of the presence of potash. Assafœtida, under chemical influences, yields formic acid.

With respect to the production of poisonous substances by the abnormal digestion of food, much light might be thrown upon the nature of certain obscure diseases by the careful analysis of the gastric juice and other secretions during the continuance of morbid influences.

The phenomena here referred to, as possibly existing in certain cases, are not to be confounded with those well recognized cases in which certain substances not particularly noxious in themselves, as, for instance, uric acid and urate of soda, create and sustain disease by obstruction. In these cases the amount of poisonous substance present is large, and could not well be overlooked. On the other hand, the author suggests the possibility that the production of certain active poisons, which may be naturally present in the system in very small quantity without injury, may be so far increased by the abnormal action of the functions of digestion as to occasion chronic or acute diseases.

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[1] This very remarkable fact first observed by Previranus, and examined by Gmelin, may be rendered very evident in the following manner: Place in the bottom of each of two test glasses, two or three drops of acid solution of sesquichloride of iron, and add to the one a teaspoonful of water, to the other an equal quantity of saliva. Even with so small a quantity of saliva the reaction is perfectly distinct, causing the ferric solution to assume the colour of sherry wine, while that diluted with water becomes almost colourless.

Art. X.—*Plica Polonica, an Endemic Disease at the Island of "Anno Bom."* By Alexander Vedder, M. D., Assistant Surgeon U. S. Navy.

During a recent voyage to the southwest coast of Africa, in the U. S. Ship "Supply," we stopped at the small island of Anno Bom, for the purpose of obtaining fresh provisions for the crew, who had been deprived of their use for some sixty days preceding. This island is situated about eighty miles south of the equator, and at a distance of two hundred from the nearest land of the African continent. It is of a conical shape, rising towards the centre into numerous lofty peaks, and may be about thirty miles in circumference. From its position, so near to the equator, and the considerable elevation of its highlands, which rapidly condense the atmospheric moisture, the climate, especially of the low land bordering the sea, is necessarily very hot and damp, being enveloped in rain and mist for a large portion of the year. It is here that the only village on the island is placed. We were induced to believe, by the glowing description of this isolated spot, its productions and inhabitants, as given by the English "Sailing Directions," that we were about to visit another Eden, where the vices of civilized communities were unknown, and where man enjoyed the choicest fruits of the earth, without expending the sweat of his brow. How these anticipations were realized will be seen in the sequel.

The inhabitants are all negroes, descendants of a cargo of shipwrecked slaves, and although the island belongs nominally to Portugal, that country exercises no sovereignty over it. Among the numbers who immediately boarded our ships from their canoes, on our dropping anchor, were some very remarkable from the peculiar disposition of their hair, or rather wool, which hung down from the head, in numerous small frizzled curls, resembling the bullion of an epaulette, and attaining a length of six or eight inches. There is a plate in Rayer's "*Atlas des Maladies de la Peau*," which is a capital representation of this affection.

I was at first disposed to think this one of the fanciful arrangements of the hair, so frequently seen among uncivilized races; but a closer examination revealed it to be that form of plica called multiform. On landing, and entering the village, numerous examples of the same disease presented themselves, on men, women, and children; besides which, numbers had their heads closely shaved, evidently, in order to free them from their disgusting appendage.

No pain appeared to be experienced in handling the affected hair, one woman, at my request, pulling off several long curls, which were extremely brittle, and composed of numerous malformed reddish hairs, closely agglutinated together. I could gain no information relative to the origin of the affection, nor its effects on the health of the individual; but the cases seen by me appeared to affect the feeble and the robust indiscriminately.

It is well known that this disease, under the name of Plica or Trichoma, first appeared in Poland, about the thirteenth century, and occurred only in those who were extremely filthy in their persons, and who lead a life of misery. Of late it has almost entirely disappeared. In this small island, we again find it in an endemic form, and evidently arising from causes nearly identical with those which produced the Polish affection, viz., dampness of climate, misery of life, and lack of cleanliness. These islanders, live in miserable huts which barely shelter them from rain, sleep at best on bare boards, and still more frequently on the damp earthen floors, and are so scantily clad as to be shivering from every passing blast. There being neither law nor government over them, they pay no regard to the rights of "meum and tuum," the stronger taking without scruple the pigs, poultry, and vegetables of the weaker, whenever the opportunity presents. In this way they have deprived themselves almost completely of the means of life, and the attenuated limbs and swollen abdomens of the great majority indicate sufficiently well, the bulky and innutritious nature of their diet. I should add that the soil is extremely fertile, yielding every tropical product in abundance. I saw no other indications of disease among this people, with the exception of vitiligo, which appeared to be quite common, and some traces of the ravages of syphilis, probably introduced by the crews of slavers and whalers. The healing art does not appear to have arrived at much perfection here, for in answer to some inquiries addressed to a rather intelligent native, who speaks tolerable English and acts as interpreter, I was informed that most diseases were treated by making punctures over the abdomen with a lancet, and then rubbing in lime-juice as a counter irritant. The abstraction of blood appears to be their principal remedial measure, judging from the traces of venesection which many bore on their arms. I offer the above as merely a slight contribution to our stock of information, gradually accumulating on the etiology and topography of disease, trusting at the same time, that it may not be entirely devoid of interest to those of the profession, whose vocation does not lead them so far from the abodes of civilization.

Art. XI.—*Gunshot Wound of Leg; Amputation and Recovery.* By W. S. King, M. D., Surgeon U. S. A.

Richard Thomas, in a drunken quarrel, received a gunshot wound in the leg from a Colt's pistol, navy size, while standing only a few feet distant therefrom. He immediately fell to the ground, and was carried to the hospital in my charge. The ball had produced a fracture of both bones of the leg, the tibia being almost completely comminuted for nearly its whole extent, with two external wounds, one produced by the ball, the other by the protrusion of pointed bone through the soft parts, probably at the time of falling. The displacement of the parts was so great that the toes of the injured limb looked to the rear. There was also considerable hemorrhage. The case called for immediate amputation, but this was postponed at the earnest pleading of the patient.

The leg was dressed lightly, placed in position, and supported by two splints loosely applied; lint steeped in solution of sulph. cupri, pressed to the wound to arrest hemorrhage, and water dressing medicated with acet. plumbi and opium over all. A dose of morphia was given to allay pain. The patient being accustomed to drink a good deal, wine was allowed at intervals, during the day. The operation was postponed for another day, on account of the unwillingness of the patient to submit to loss of the limb.

At the end of the second day, delirium tremens, or traumatic delirium supervened, the patient constantly whistling or talking, and fearful of persons near him, who he supposed would injure him; much excited at times, and pulse 120. On the fourth day after the injury, he had not slept for forty-eight hours; a watch had to be placed to keep him in bed; skin hot and dry; pulse 125; delirium the same, and the leg much swollen and discoloured. In this condition he was persuaded to blow into a sponge containing ether. After repeated attempts, he was at length completely etherized, lifted on the table and his leg taken off just below the knee. He slept half an hour after the operation; pulse fell to 90; skin became moist, and he awoke a little nervous, but rational.

This was the first time I ever amputated under similar circumstances, viz., during the excitement of delirium, and in my reading, I see no mention of operations of this kind performed in the same condition as my patient. In this case, there can be no doubt that it was the means of saving life, as I feel very confident, that after the stage of excitement had passed, he would have fatally sunk if the limb had not been removed.

He is now well and walking about with a crutch. On examining the removed limb, the tibia was found to be broken into more than twenty pieces, some four, three and two inches in length, others much smaller.

The above case illustrates well the soothing influence of the inhalation of ether, together with the removal of the cause of irritation in calming down morbid excitement, both of body and mind.

Albuquerque, N. M., January 24th, 1860.

Art. XII.—*Case of Face Presentation; Mento-sacral Position; Delivery without change of Position.* By Wm. Keller, M. D., of Philadelphia.

Mrs. H., a German lady of about 30 years of age, and healthy constitution, was delivered, without any difficulty, on the 25th of April, 1855, of a girl presenting with the vertex, and again on the 19th of February, 1857, the child presenting in the same position.

On the 10th of April, 1859, in the morning, at full term, she was taken in labour with her third child. I found, at 9 o'clock, the os tincæ opened and of the size of a silver dollar. Though the bag of waters was not ruptured, I could distinguish a face presentation.

The progress of the labour was very slow during the day. In the evening, about 8 o'clock, whilst the os tincæ was considerably distended, the membranes broke during a pain, and I found the chin of the child below the lumbar vertebræ turned directly towards the sacrum. I made some fruitless efforts to change the position to a head presentation.

As the pains continued to be feeble, and as this presentation was the first of the kind I had ever met with, I sent for a very experienced obstetrician, so as to have his assistance in case of unforeseen difficulties occurring. My friend believing, according to the doctrine of nearly all accoucheurs, the birth of the child in this presentation to be impracticable, proposed to wait for stronger pains, and then to turn the child and deliver by the feet.

The lady, to give more power to her bearing down, knelt on a foot-stool, resting with the upper part of the body on the bed. I was sitting behind her, so as to give her every possible assistance during the pains. They set in so severely that I observed a considerable advance of the child's face during each of them. Before half past ten, the child, a boy, was born, and, as far as I could judge during the hurry and excitement attending the birth, with the left os parietale first.

Notwithstanding the happy issue of this delivery, which required no artificial help whatsoever, I believe it my duty to report the case, as it is a very rare one, and one which would have necessitated, according to the rules of art, version by the feet. Yet it was left to itself, and an operation thus avoided, which I consider, whether in head or face presentations after the waters have been destroyed for some time, always serious, and sometimes highly dangerous to the mother.

Art. XIII.—*Of the Transverse or Occipito-Iliac Positions of the Vertex Presentation.* By Joseph K. T. Van Pelt, M.D., of Philadelphia.

It is a remarkable circumstance that there are physicians, in extensive practice too, who but seldom meet with cases of preternatural parturition and unusual presentations, demanding a resort to version, forceps, and other expedients, while others, in more limited business, are fated to encounter them again and again. Strange as this may appear, it is nevertheless true. Facts within my own knowledge abundantly prove it.

Instances of transverse presentation having come under my own management, occurring, moreover, within a comparatively brief interval, I have thought that a communication respecting them might not be an inappropriate article for the pages of this journal. I have not the vanity to suppose that I can present anything new on this subject to the profession. My only object is to show that cases of the kind above mentioned do happen, and that perhaps more commonly than is generally imagined; and then, as a necessary consequence, the importance of a thorough preparation to treat them successfully. As to the method by which the delivery in the cases I am about to notice was conducted, I claim nothing that is either original or novel, having adopted merely those measures with which every well-instructed accoucheur is familiar.

In the classification of the vertex presentations, as given in some of our text-books, no place is assigned to those of the character now under consideration, although more justly entitled, in my judgment, to recognition than the occipito-pubal and occipito-sacral positions, which are invariably mentioned in obstetrical works, but which, nevertheless, are seldom, if ever, met with in practice. Different authors have acknowledged the transverse positions. Thus, Madame Lachapelle describes her fifth position as the occiput directly to the left, and her sixth as occiput directly to the right. Professor Moreau gives the following classification:—

First Genus: Vertex Presentation.	1*st Position:* Left Occipito-Ilium.	Anterior. Transverse. Posterior.
	2*d Position:* Right Occipito-Ilium.	Anterior. Transverse. Posterior.

Flamant designates his seventh as occipital fontanelle above the left iliac fossa; when above the right iliac fossa, as the eighth. Ramsbotham, in like manner, enumerates the seventh and eighth respectively as occipito-left and occipito-right iliac. Dr. Davis's third position is, "where the right ear lies immediately behind the symphysis pubis, and the occiput is directed to the left side of the pelvis." The division employed by Dr. Joseph Warrington, my respected preceptor, I here insert, as being the most perfect and significant of all tabular denominations of the head, and on this account well worthy of recollection. It is to be understood that the patient is lying on the left side.

1. Occiput to left acetabulum.	Occiput downwards and forwards.
2. Occiput to right acetabulum.	Occiput upwards and forwards.
3. Occiput to pubis.	Occiput directly forwards.
4. Occiput to right sacro-iliac junction.	Occiput upwards and backwards.
5. Occiput to left sacro-iliac junction.	Occiput downwards and backwards.
6. Occiput to sacrum.	Occiput directly backwards.
7. Occiput to left ilium.	Occiput directly downwards.
8. Occiput to right ilium.	Occiput directly upwards.

Other writers, as Kilian, Smellie, Chevreul, Cazeau, Boivin, and Hamant, admit their occurrence, and assign them a place in their catalogue of vertex presentations. Smellie and Burns even contend that the head does not turn, or execute its pivot-like motion of rotation, until it has arrived at the inferior strait; and the latter remarks that when as low down as the floor of the excavation it is still found crosswise.

In diagnosing these transverse positions, I have argued that they truly deserved the appellation, by observing the vertex, long before it sank into the excavation, to be on the same line with the bi-ischiatic diameter of the inferior strait; no conversion into an anterior or posterior position, by rotation to either side of the tuberosity, ensuing after it engaged in the true pelvis. Indeed, the parallelism of the occipito-bregmatic or vertical diameter of the cranium with that of the bi-ischiatic was not changed by rotation until the perineal tumour had formed, as the following cases show:—

Case 1. Sarah Ann F——, æt. 22; primipara; sent for me at 9 P. M., March 17, 1856. Membranes ruptured, and os uteri one-third dilated; vertex plainly felt jutting below the brim of the pelvis in the seventh position (occiput to left ilium). By exerting a little tension with the finger against the cervix, the pains became more violent, with large gushes of the waters at intervals. Dilatation of os uteri complete at 11 P. M. At midnight, head at inferior strait; pains very violent, and rapid in their return; perineal tumour formed; by pressing back the perineum, vertex felt close to the left tuberosity. Child born at $12\frac{1}{2}$ P. M.; male; occipito-mental diameter $5\frac{8}{16}$, occipito-frontal $4\frac{12}{16}$, bi-parietal $3\frac{15}{16}$. Duration of labour; six hours.

Case 2. Anna R——, æt. 31; seventh pregnancy; sent for April 29, 1856, at 7 P. M. Os uteri dilated and contracted above the head; ruptured the membranes; eighth position; pain ceased for nearly an hour; attempts to favour rotation by pressing against the right parietal bone, but the head appeared too firmly placed to allow of success. At 9 the presentation completely filled up the excavation, the pains increasing in violence; head still in the same position. At $10\frac{1}{2}$ P. M. the delivery was accomplished, a few moments elapsing between the beginning of rotation and the exit of the head; male; cord around neck once; occipito-mental $5\frac{9}{16}$, occipito-frontal $4\frac{15}{16}$, bi-parietal $4\frac{2}{16}$. Duration of labour, eight hours.

Case 3. Catharine Adelaide C——, æt. 23; fourth pregnancy; was delivered at 6 A. M., December 28, 1857, after eight hours of hard labour, the head being in the seventh position till within fifteen minutes of delivery. All my efforts to force the rotation by the hand having proved ineffectual, this part of the mechanism of labour was accomplished under the intensity of the last pains. Female; occipito-mental $5\frac{11}{16}$, occipito-frontal $5\frac{1}{16}$, bi-parietal 4 inches.

Case 4. Elizabeth K——, æt. 29; fourth pregnancy. I was summoned at 11 P. M., February 1, 1860, and found the waters drained off, the os uteri being two inches in diameter. I diagnosed the eighth position shortly after the dilatation was partially completed. The pains, which were at first irregular and feeble, became very strong at 4 A. M., the head remaining transverse until after 5, when, rotation having taken place, a single uterine contraction finished the delivery. Male; occipito-mental $5\frac{9}{16}$, occipito-frontal $4\frac{14}{16}$, bi-parietal $3\frac{11}{16}$. Duration of labour, six hours.

With many this disposition of the head is associated, in idea, with that condition known as locked or impacted, and requiring, necessarily, the use of forceps, if not the perforator and crotchet. This is a mistaken view, as will readily be seen by reference to the preceding cases. Labours which are of a tedious and painful character, in general, contrasted with those of the first and second positions of the vertex, may yet terminate naturally and safely, albeit demanding considerable manual effort to assist, and almost force, the rotation towards the pubal arch. My own experience has taught me that, under these circumstances, we must in some labours, however, anticipate a severe struggle on the part of the patient, and, for ourselves, a recourse, at a certain period of the accouchement, to forceps, though I have no doubt that adequate delay would of itself secure a natural termination of the delivery. But it seems to me a species of refined cruelty to witness with stoical indifference the most intense agony which the human frame can endure, while it is in our power, if not restrained by prejudice or timidity, to terminate it at once, by means always successful when used with skill and discretion.

An increased bulk of the lateral dimensions of the fœtal cranium has been regarded as inducing the transverse positions. The bi-parietal diameter, however, is not unfrequently found considerably over four inches, and the presentation, that of the first position of the vertex, attended by a natural and easy labour. Indeed, we often find this diameter measuring four inches in pelvic presentations, and the head disengaging itself without any opposition. A vitiated condition of the sacro-pubal or conjugate diameter of the superior strait has been also assigned as a cause of the iliac positions. I have never yet encountered this in any exaggerated form. When a great disproportion exists between the pelvic dimensions and the size of the head, whether dependent on excessive volume of the latter or a contraction of the former, it is plain that an arrest of the lateral extremities of the cranium will occasion the impacted condition of the transverse position.

As the four inches, usually acknowledged the average measurement of the conjugate diameter of the superior strait, is not a constant quantity, and the bi-parietal in like manner being subject to much variety, it is certain that the circumstances which occasion the occurrence of this position will not be invariably the same, since the cases about to follow prove that it may exist with a bi-parietal of small extent, even so low as $3\frac{9}{16}$, no matter what the size of the pelvic diameter, and thereby render instrumental interposition essential.

Case 5. Bridget D——, æt. 35; ninth pregnancy. Labour began at 9 P. M., April 26, 1855; strong and frequent pains all night; at 3 A. M. the waters escaped; os uteri widely dilated, and the head plainly felt in the seventh position. The pains continued with great violence until 8 A. M., when they ceased entirely, the head remaining stationary at the brim. Symptoms of exhaustion being quite apparent at 12 M., I applied Davis's forceps, placing the left-hand blade obliquely over the posterior and left part of the head, and the right-hand blade over the anterior and right portion; rotation was effected within the forceps, their grasp being relaxed to permit that movement. Male; occipito-mental $5\frac{11}{16}$, occipito-frontal $4\frac{15}{16}$, bi-parietal $3\frac{12}{16}$. Duration of labour, fifteen hours. Treatment of mother and child successful.

Case 6. Mary H——, æt. 35; second pregnancy. Labour began at 12 P. M., May 3, 1855; head presented in the seventh position; liquor amnii discharged before one-fourth of the dilatation of the os was complete; violent and excessive uterine action all night; dilatation of os uteri extremely tardy. During the day attempted to assist rotation, but failed. At $6\frac{1}{2}$ P. M., the pains having become quite feeble, I adjusted Davis's forceps to the head, now sunk in the excavation, obliquely, as described in the preceding case, after pushing the os uteri above and away from the presentation; rotation followed, as in that case. Female; occipito-mental $5\frac{10}{16}$, occipito-frontal $5\frac{2}{16}$, bi-parietal $3\frac{13}{16}$. Duration of labour, eighteen hours. Treatment of mother and child successful.

Case 7. Bridget S——, æt. 26; fourth pregnancy. Labour commenced at $2\frac{1}{2}$ P. M., February 11, 1856; dilatation of os uteri completed in five hours, waters escaping spontaneously soon after; head gradually sunk into the excavation in the eighth position, the os passing above its occipito-frontal circumference. At 9 P. M. the head became immovably fixed; the pains then acquired great force, but proved inadequate to move the head forwards. At $3\frac{1}{2}$ A. M. I adjusted Davis's forceps obliquely over the occiput and sinciput, and delivered a male child; cord around neck once; occipito-mental $5\frac{4}{16}$, occipito-frontal $4\frac{8}{16}$, bi-parietal $3\frac{13}{16}$. Duration of labour, thirteen hours. Treatment of mother and child successful.

Case 8. May 12, 1856, I was requested by Dr. T—— to deliver Mary J——, æt. 18, primipara, who had been in labour fourteen hours; waters discharged, and the head in the eighth position, encircled by the os uteri and engaged in the brim. As this condition had already lasted many hours without its making the least progress, I inserted the blades of Davis's forceps within the os uteri, placing them obliquely over the occipito-frontal diameter of the child; rotation followed within the blades, which were then removed, and applied as is customary for the first vertex position. Male; occipito-mental $5\frac{14}{16}$, occipito-frontal $4\frac{15}{16}$, bi-parietal $3\frac{10}{16}$. Treatment of mother and child successful.

Case 9. Anna S——, æt. 25; primipara. Labour began 3 P. M., June 11, 1856, attended with frequent and energetic contractions; os uteri dilated at 12 P. M. Three hours after I ruptured the membranes, hoping that the head would soon descend into the inferior strait; discovered the eighth position. At $7\frac{1}{2}$ A. M., finding that no advancement had been made, and that the pains were still very violent, the patient's countenance flushed, and her sufferings exceedingly great, I delivered the head by placing the Davis forceps transversely over the occipito-frontal diameter. Male; occipito-mental $5\frac{13}{16}$, occipito-frontal $5\frac{1}{16}$, bi-parietal $3\frac{13}{16}$; cord around neck once. Duration of labour, sixteen hours. Treatment of mother and child successful.

Case 10. Anna C——, æt. 29; primipara. Labour began near 5 P. M., January 26, 1857; waters had ruptured early; eighth position; preternatural firmness and solidity of the cranial bones; os uteri rigid, vagina hot, and abdomen tender to the touch. Tartar emetic in divided doses and v. s. ℥xvj. Great intumescence of the scalp; pains very violent; os nearly dilated at 12 M. of the following day. At this period meconium was passed. When the head had sunk into the excavation, at 3 P. M., I locked the Davis forceps obliquely over it, delivering a still-born male child; occipito-mental $5\frac{14}{16}$, occipito-frontal $4\frac{15}{16}$, bi-parietal $3\frac{9}{16}$. Duration of labour, twenty-two hours. Patient's recovery was rapid.

Case 11. Cecilia M——, æt. 18; primipara. Labour began 9 A. M., February 26, 1857, lasting twenty-nine hours, during six of which there was scarcely any pain; seventh position. The os being flaccid and yielding, but still embracing the head at the superior strait, I did not hesitate to lock the Davis forceps obliquely over the cranium, while within that organ. Male; occipito-mental $5\frac{7}{16}$, occipito-frontal $4\frac{13}{16}$, bi-parietal $3\frac{12}{16}$. Treatment of mother and child successful.

Case 12. Mary T——, æt. 35; primipara. Pains began at 3 P. M., March 18, 1859; seventh position. After eighteen hours of severe suffering, I withdrew the head from the brim by the Davis forceps, locked obliquely, the patient being a delicate person, and completely exhausted from the length and character of the labour. Male; occipito-mental $5\frac{9}{16}$, occipito-frontal $4\frac{12}{16}$, bi-parietal $3\frac{10}{16}$. Treatment of mother and child successful.

M. de Leurie was the first to recommend the adaptation of the forceps after the manner shown in the preceding cases. As far as my experience extends, I have never witnessed any disfigurement or injury of the features of the infant by thus applying them, which was the ground of the objection urged by Baudelocque, who also denied the possibility of any diminution of the bi-parietal diameter by this means, asserting, on the contrary, that it must necessarily be increased. It is easy to refute his statement practically by placing the head of a still-born infant in the grasp of the instruments, as they have been adjusted in my own cases. Not only is the head then found to have its rotation, if I may use the expression, started, but an actual decrease of the bi-parietal ensues, the occipito-frontal being that diameter which becomes elongated. In fine, from the results so frequently witnessed in practice, I regard this presentation as affording as great a field for exhibition of the safety and usefulness of the obstetrical forceps as can be had by any other disposition of the fœtal superficies. Smellie advises: "If the operator finds the upper parts of the sacrum jutting in so much that the point of the forceps cannot pass it, let him try with his hand to turn the forehead a little backwards, so that one ear will be towards the groin, and the other towards the side of that prominence, consequently there will be more room for the blades to pass along the ears; but if the forehead should remain immovable, or, though moved, return to its former place, let one blade be introduced behind one ear, and its fellow before the other."

In these cases I have had very little success from employing the vectis or lever to assist rotation. Velpeau asserts that, to use the vectis with most effect, the head should be in the excavation, and have executed its rotation. Most of my cases have required interference while the head was still in the brim. In a *natural* labour, spontaneous rotation is occasioned through the counter-resistance of the concavity of the pelvic floor against the occiput, when it has sunk so low down as to be beyond the influence of the bones and ligaments; it is, therefore, useless to attempt rotation in cases of *dystocia,* where the head is situated higher up than the soft tissues at the inferior strait.

Professor Simpson represents the vectis as an instrument for producing extraction, rotation, and restoring the flexion of the head; but recommends the *straight* forceps as far superior to it in securing rotation and extraction, while he regards the *curved* forceps as inferior in that respect to the vectis. Davis's forceps always furnish a safe and sufficient extractive power, if locked in the oblique or acetabulo-sacro-iliac diameter, over a transverse presentation of the head, the rotation effected within its blades being as complete and gradual as that occurring in a natural delivery. By thus adjusting the forceps, we avoid injuring the soft parts in front of the head, as the urethra, bladder, and anterior planes of the os and vagina; obviating, likewise, undue compression of the soft and delicate structures covering the promontory of the sacrum. Professor Simpson observes: "The blades of the long forceps should, I believe, be placed obliquely upon the child's head—one, the posterior, over the side of the occiput; and the other, or anterior, over the side of the brow or temple—and consequently they should be generally situated somewhat in the oblique diameter of the brim."

The difficulty encountered in applying the forceps to the *sides* of the head, in occipito-iliac positions, is owing to the sacro-vertebral angle, coccyx, and perineum offering such obstacles as will rarely permit of their being placed transversely, or allow extraction to be made in the direction of the axis of the superior strait, while in most cases there is not sufficient room for the blades to be inserted between the pelvic bones and those of the fœtal cranium.

I append the cases which have presented the largest bi-parietal diameters.

CASE 13. ——, æt. 20; primipara; seventh position. Applied, for Dr. S——, Davis's forceps, locking them obliquely, rotation being performed while within their hold; anterior fontanelle plainly felt high up in the right side of the pelvis. Delivery accomplished at 12 M., July, 1855; duration of labour, twenty-four hours. Bi-parietal, apparently, quite large; head not measured. Treatment of mother and child successful.

CASE 14. Matilda R——, æt. 30; fifth pregnancy; seventh position; delivered 10 P. M., February 19, 1856; unsuccessful in attempting rotation by the vectis; Davis's forceps locked obliquely over occiput and sinciput. Female; occipito-mental $5\frac{8}{16}$, occipito-frontal $4\frac{13}{16}$, bi-parietal $4\frac{2}{16}$. Duration of labour, sixteen hours. Treatment of mother and child successful.

CASE 15. Sarah C——, æt. 38; primipara; eighth position; delivered 2 P. M., March 12, 1856; Davis's forceps locked obliquely within os uteri. Female; occipito-mental $5\frac{8}{16}$, occipito-frontal $4\frac{15}{16}$, bi-parietal $4\frac{4}{16}$. Duration of labour, nineteen hours. Treatment of mother and child successful.

CASE 16. Anna H——, æt. 42; eighth pregnancy; eighth position, complicated with a slight departure of chin from the breast; efforts made with vectis to restore the proper flexion. Davis's forceps applied obliquely in excavation; catheterism resorted to previously. Delivery 6 P. M., March 24, 1856. Female. This labour was so severe, that I recommended at an early period a resort to forceps, which she obstinately opposed, until complete exhaustion and fatigue compelled a compliance with my advice. A large slough separated in a few days from each parietal boss, completely exposing the bone, and remaining unhealed many weeks, a manifest result of the great pressure sustained by those surfaces, which might have been prevented by earlier resort to instrumental aid. Duration of labour, twenty hours. Occipito-mental $5\frac{8}{16}$, occipito-frontal $4\frac{14}{16}$, bi-parietal $3\frac{15}{16}$. Patient's recovery was rapid.

CASE 17. Rebecca J——, æt. 23; primipara; eighth position. Succeeded in adjusting the Davis forceps to the *sides* of the head. Delivered at $2\frac{1}{2}$ P. M., March 27, 1856. Male; occipito-mental $5\frac{8}{16}$, occipito-frontal $4\frac{15}{16}$, bi-parietal 4 inches. Duration of labour, twelve hours. Treatment of mother and child successful.

CASE 18. Rosaline G——, æt. 31; eighth pregnancy; eighth position. Delivered $10\frac{3}{4}$ A. M., April 21, 1857. Davis's forceps applied obliquely. Male. Duration of labour, fourteen hours. Occipito-mental $5\frac{12}{16}$, occipito-frontal $5\frac{1}{16}$, bi-parietal $4\frac{2}{16}$. Treatment of mother and child successful.

CASE 19. Sarah M——, æt. 26; third pregnancy; seventh position. Davis's forceps adapted obliquely to the head. Delivered of an uninjured live male child at 3 P. M., December 6, 1857. Duration of labour, fourteen hours. Occipito-mental $5\frac{13}{16}$, occipito-frontal $5\frac{1}{16}$, bi-parietal $3\frac{14}{16}$. In her previous labours, which were also instrumental, under other physicians, the children were still-born. Speedy recovery of mother.

CASE 20. Ellen M——, æt. 39; primipara; attended January 8, 1858; seventh position. After she had been twenty-two hours in labour, I auscultated the abdomen; fœtal heart not heard; child evidently dead; os uteri rigid and unyielding; its circumference felt a few lines beneath the head. As the head did not advance, and seemed perfectly immovable, the patient's sufferings being great, and constitutional disturbance evident, I urged craniotomy, which was rejected. Eight hours after, I received permission to deliver with the forceps, locking the blades obliquely, but was compelled to pass them within the uterus for that purpose; the compression made by the presentation, as I drew it down from the brim, completed the dilatation of the os uteri. I had never before, nor have since, been compelled to employ so great force in extracting the head. Male; stillborn; occipito-mental $5\frac{10}{16}$, occipito frontal $5\frac{1}{16}$, bi-parietal $3\frac{15}{16}$. The mother was sufficiently recovered to leave her room on the seventh day. I have been informed that this patient died recently, in a subsequent labour, undelivered, at a neighbouring city.

CASE 21. Jane F——, æt. 28; primipara; delivered 11 A. M., February 3, 1858; seventh position. Davis's forceps applied obliquely. Male; occipito-mental $5\frac{9}{16}$, occipito-frontal $5\frac{2}{16}$, bi-parietal 4 inches. Duration of labour, twenty-three hours. Treatment of mother and child successful. I am daily expecting the second accouchement of this patient.

CASE 22. Bridget P——, æt. 30; fourth pregnancy; delivered $3\frac{1}{2}$ P M., February 25, 1859; seventh position. Davis's forceps applied obliquely within the os, head at brim. Female; occipito-mental $5\frac{6}{16}$, occipito-frontal $4\frac{11}{16}$, bi-parietal $3\frac{15}{16}$. Duration of labour, eighteen hours. Treatment of mother and child successful.

CASE 23. Margaret G——, æt. 31; fifth pregnancy; seventh position; delivered $12\frac{1}{2}$ A. M., November 18, 1859. Davis's forceps applied obliquely to the head at the brim. I was compelled in this case to pass the lock or junction of the blades a short distance within the vagina to reach the head. Female; occipito-mental $5\frac{2}{16}$, occipito-frontal $4\frac{14}{16}$, bi-parietal $4\frac{1}{16}$. Duration of labour, eighteen hours. Treatment of the mother and child, successful.

In concluding this article, it may be proper to state, that in the collection of my obstetrical cases—now seven hundred and forty-two in number—I have recorded seven hundred and eighteen cephalic presentations, including those of eight twin labours. Of these, eight were of the face, six hundred and seventy-eight of the first position of the vertex, twelve of the second position, five of the fifth position; of the occipito-iliac positions I have had twenty-three, thirteen of the seventh, and ten of the eighth position. Ramsbotham says the seventh is the most frequent.

Of the pelvic presentations I have had twenty-five in the seven hundred and forty-two cases of labour. In one individual the presentation occurred three times under my supervision; in another, twice.

The shoulder presentation, usually considered as a deviation from the original head presentation, was found in seven cases.

A sacrum too straight, of an insufficient curvature, may give rise to a transverse condition of the head. I have never yet met with such a case; nor observed that species of delivery, described in the three cases reported by Madame Lachapelle, where the vertex makes its exit at the tuberosity of one ischium, the forehead afterwards emerging by extension aside of the internal surface of the opposite one.

TRANSACTIONS OF SOCIETIES.

Art. XIV.—*Summary of the Transactions of the College of Physicians of Philadelphia.*

1859. *Nov. 2. Imperforate Rectum.*—Dr. Ellerslie Wallace narrated the following case, in which a child with imperforate rectum was permanently relieved by operation on the closed end of the rectal pouch:—

Twelve weeks ago, I attended a lady in her first confinement; her child was of average size, and appeared to be properly formed in all respects. The infant nursed at the breast for some thirty-six hours, but then refused to take its natural nutriment, and was restless, and evidently in pain. The urine had passed occasionally, and in fair quantity, but there had been no alvine evacuation. I ordered an enema, which returned as soon as given, and produced no movement of the bowels. A cathartic, administered some hours after, was instantly rejected by vomiting. Sixty-four hours after the child's birth, I was notified that the bowels had not yet been opened, and that it seemed to suffer great pain. I saw it without loss of time, and found the child fretting constantly, and making repeated tenesmic efforts; the abdomen was largely distended, the breathing was short, and the expansion of the lung incomplete, from the great amount of flatus in the hollow viscera, below the diaphragm. The vomiting was frequent, with ejection of meconium. The hands and feet were cold, the face pinched and collapsed, and the pulse was a mere thread.

I explored the rectum with the finger, and found a cul-de-sac, of an inch in depth, passing upward from a perfectly well-formed anus; above the terminus of the pouch, I could feel only an elastic mass, of which the character was uncertain, as I was, of necessity, in doubt as to whether the mass was a distended rectum only, or the general bulk of the intestines compressed into the pelvis.

I explained the condition of the child to the family, and requested a consultation with Dr. Keating, who met me soon, and we advised the immediate performance of an operation for the infant's relief.

We mentioned, also, the possibility of the non-development of the rectum above the cul-de-sac, and the certainty of the operation proving unsuccessful if the gut had not been formed, and likewise the possibility of the operation yielding but temporary relief, even if the intestine should be reached by a cutting process.

Dr. Keating held the child for me: I then passed a delicate sharp-pointed bistoury into the anal aperture, and using the little finger of my left hand as a guide, I plunged the bistoury through the terminal wall of the cul-de-sac, making a puncture towards where the rectum should be. Upon withdrawing both finger and knife, a drop of meconium appeared. Being thus encouraged, I repeated the puncture, enlarging the aperture backward, toward the sacrum. I then removed the knife a second time, and had abundant evidence of having divided the intestine more perfectly than before. Again I passed the finger into the pouch, and guiding my bistoury upon it, made an incision of semicircular form, endeavouring to follow the posterior half-round of the intestine, so as to avoid the possibility of wounding the peritoneum. The withdrawal of the finger and bistoury was now followed by a free discharge of meconium, of well formed feces, and of flatus. There was no bleeding worthy of notice. The distension of the abdomen was at once diminished, the child ceased to cry and whine, the extremities soon became warm again, and the pulse increased in force. Twelve hours after the operation, I again saw the patient; there had been no additional dejection; the abdomen was again much swollen, and the child was now refusing its nourishment, though it had nursed frequently and freely since I saw it last. I passed my finger into the bowel, and found the opening obstructed by what proved to be a dense blood clot; upon breaking it away with the finger another free discharge took place, and the infant experienced immediate relief.

During the week succeeding, I once advised an enema of warm water, and administered a single dose of oil, being unwilling to allow more than twelve hours to elapse without an alvine evacuation. This has constituted the entire treatment.

The child has never had colic, and has had no difficulty whatever with the opening of the bowels, which has taken place from two to four or five times per day, the matters passed being generally semi-fluid, but occasionally of ordinary solid consistence. It has always nursed well, and thrived well to the present time.

I have informed the parents, that when the feces shall permanently assume the solid character, I may deem it prudent to enlarge the communication between the proper rectum above, and the terminal pouch, which opens at the anus.

Should anything further present itself, in the above case, I shall report it to the college.

1860, *Feb.* 1. *Report on Meteorology and Epidemics.*—Dr. WILSON JEWELL read the following report on meteorology and epidemics for the year 1859:—

The accompanying meteorological observations are entirely reliable, and are from the record as taken by Prof. James A. Kirkpatrick, of the Philadelphia High School, for the Smithsonian Institution. I am indebted to his uniform politeness for this abstract.

The mean temperature of the year (1859) was three-quarters of a degree below that of 1858, and almost two-tenths of a degree above the average for the last eight years.

The maximum temperature for the year, 97°, was attained on the 13th of July, and the 4th of August. The minimum temperature was two degrees below zero, on the 10th of January.

The warmest day of the year was the 13th of July, when the mean temperature was 86½ degrees.

The coldest day was the 10th of January, the mean for that day being but two degrees.

The winter and spring were nearly 3° above the average temperature for the last eight years, while the summer and autumn were nearly 2° below the average.

Of the months, the greatest variation from the average was experienced in March, which was more than 7° warmer than usual; indeed, the mean temperature of that month was 5° higher than any March in the last eight years. This change in the temperature of March may have been occasioned in part by the more southerly direction of the wind, the prevailing direction being 9° further south of west than it usually is, north of that point.

The large amount of rain—4 inches more than the average—may also have had a modifying effect upon the temperature.

The highest point of pressure shown by the barometer, was 30.478 inches, on the 24th of January; and the lowest was 28.890, on the 23d of April.

The amount of rain that fell during the year was 54¾ inches, which is ten inches more than the average for the last eight years. It was more than 13 inches greater than the quantity which fell in 1858. The greatest difference was in the winter and autumn, each of which shows 5 inches of rain more than the average, while the spring and summer show an increase of but little over one inch.

General Abstract of Meteorological Observations, made at Philadelphia, Pa., during the year 1859.

By JAMES A. KIRKPATRICK, A. M., Prof. of Civil Engineering in the Philadelphia High School.

(Barometer fifty feet above high water.)

1859.	THERMOMETER.									BAROMETER REDUCED TO 32° F.							
							RANGE.									RANGE.	
MONTHS.	7 A. M.	2 P. M.	9 P. M.	Mean.	Max.	Min.	Monthly.	Mean daily.	Mean of daily oscillations.	7 A. M.	2 P. M.	9 P. M.	Mean.	Max.	Min.	Monthly.	Mean daily.
	°	°	°	°	°	°	°	°	°	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
January . . .	30.02	38.63	33.35	34.00	55	—2	57	8.0	13.0	30 016	29.975	30.017	30.003	30.475	29.387	1.088	.206
February . . .	32.70	40.64	35.99	36.43	63	18	45	6.3	13.2	29.900	29.864	29.891	29.885	30.229	29.316	0.913	.230
March	41.77	55.31	47.27	48.12	70	20	50	6.0	16.9	29.777	29.735	29.762	29.758	30.360	29.215	1.145	.250
April	45.70	56.13	49.01	50.28	78	31	47	6.3	15.5	29.723	29.678	29.703	29.701	30.083	28.890	1.193	.160
May	59.66	72.24	62.06	64.65	87	44	43	5.7	19.7	29.894	29.853	29.876	29.874	30.176	29.512	.664	.111
June	67.05	76.76	68.74	70.85	96	42	54	6.1	18.9	29.881	29.842	29.859	29.861	30.152	29.520	.632	.116
July	72.00	82.68	73.31	76.00	97	54	43	4.6	20.2	29.870	29.833	29.853	29.852	30.202	29.554	.948	.099
August	69.03	82.16	72.39	74.53	97	51½	45½	3.1	20.5	29.847	29.801	29.832	29.827	29.998	29.671	.327	.070
September . . .	61.02	72.88	64.65	66.18	82	45½	36½	4.1	18.1	29.875	29.835	29.863	29.858	30.179	29.338	.841	.119
October	46.98	59 11	50.87	52.32	81½	30	51½	5.9	18.1	29.864	29.823	29.850	29.845	30.193	29.470	.723	.140
November . . .	42.63	53.35	46.48	47.49	67	27	40	7.3	18.6	29.990	29.940	29.965	29.965	30.338	29.436	.902	.193
December . . .	30.66	36.48	31.87	33.00	71	9	62	8.4	14.2	29.941	29.906	29.930	29.926	30.293	29.393	900	.199
Annual means .	49.93	60.53	53.00	54.49	97	—2	99	6.0	17.2	29.881	29.840	29.867	29.863	30.475	28.890	1.585	.158
Winter	34.50	40.08	35.60	36.03	63	—2	65	6.9	12.7	29.973	29.931	29.958	29.954	30.475	29.206	1.269	.214
Spring	49.04	61.23	52.78	54 35	87	20	67	6.0	17.4	29.798	29.755	29.780	29.778	30.360	28.890	1.470	.174
Summer	69.36	80.53	71.48	73.79	97	42	55	4.6	19.9	29.866	29.825	29.848	29.847	30.202	29.520	.682	.095
Autumn	50.21	61.78	54.00	55.33	82	27	55	5.8	18.3	29.910	29.866	29.893	29.889	30.338	29.338	1 000	151
For eight years .	49.73	59.93	53.27	54.31	100½	—5½	106	5.6	14.7	29.894	29.857	29.879	29.877	30.704	28.884	1.820	.156

Meteorological Observations—Continued.

1859.	RELATIVE HUMIDITY.					FORCE OF VAPOUR.						WINDS.	CLOUDS. Tenths of sky covered.				DEW-POINT.					
MONTHS.	7 A.M.	2 P.M.	9 P.M.	Max.	Min.	7 A.M.	2 P.M.	9 P.M.	Max.	Min.	Rain and melted snow.	Monthly resultant; No. of times in 1000.	7 A. M.	2 P. M.	9 P. M.	Mean.	7 A.M.	2 P.M.	9 P.M.	Mean.	Max.	Min.
	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Inch.	Inch.	Inch.	Inch.	Inch.	Inches.						°	°	°	°	°	°
January . . .	82	64	77	96	35	.153	.165	.158	.390	.028	5.230	N. 80° 41′ W., 375	6.4	6.2	4.4	5.7	25.06	27.05	27.02	26.38	52.1	—9.4
February . . .	79	65	74	95	31	.152	.166	.158	.404	.070	3.569	N. 42° 53′ W., 241	6.4	6.6	5.3	6.1	26.87	28.52	28.02	27.80	53.1	10.6
March	74	50	66	95	23	.207	.227	.222	.549	.085	6.503	S. 67° 23′ W., 231	5.9	5.6	4.9	5.5	33.71	35.36	35.96	35.01	61.7	14.8
April	65	47	63	95	22	.207	.212	.226	.478	.096	5.668	N. 68° 30′ W., 224	5.5	7.0	5.6	6.0	33.76	33.74	36.01	34.50	57.8	14.8
May	69	50	69	97	18	.361	.383	.393	.691	.121	1.946	S. 7° 36′ W., 90	5.0	5.6	4.1	4.9	49.12	50.26	51.13	50.17	68.3	22.6
June	72	57	72	95	29	.501	.541	.512	.964	.162	5.229	S. 71° 2′ W., 393	5.5	5.8	5.5	5.6	57.31	59.07	58.15	58.17	78.2	29.3
July	69	51	69	90	32	.551	.574	.579	.890	.268	3.915	N. 84° 6′ W., 166	5.8	5.2	3.5	4.8	60.88	61.78	62.42	61.69	75.8	42.1
August	75	50	72	92	31	.551	.551	.581	1.014	.268	4.447	S. 26° 34′ E., 55	4.5	5.8	4.3	4.9	60.86	60.63	62.60	61.36	79.7	42.1
September . .	79	59	76	97	29	.438	.462	.472	.658	.181	7.779	N. 70° 38′ W., 236	6.2	6.6	5.6	6.1	54.37	55.90	56.72	55.66	66.8	32.0
October . . .	75	50	69	97	23	.259	.274	.280	.569	.065	3.210	N. 75° 21′ W., 405	5.8	5.5	4.8	5.4	39.26	39.75	40.85	39.95	62.7	8.9
November . . .	77	56	71	97	32	.227	.241	.241	.559	.112	3.796	N. 54° 52′ W., 206	5.6	5.7	4.1	5.1	35.82	37.36	37.51	36.89	62.2	20.8
December . . .	76	69	77	96	46	.148	.171	.158	.551	.043	3.460	N. 37° 45′ W., 229	7.0	7.5	4.8	6.5	24.09	27.25	25.57	25.64	61.7	—0.1
Annual means .	74	56	71	97	18	.313	.331	.332	1.014	.028	54.752	N. 79° 31′ W., 255	5.8	6.1	4.7	5.5	41.76	43.06	43.50	42.77	79.7	—9.4
Winter	80	66	76	100	31	.158	.171	.168	.524	.028	14.258	N. 56° 40′ W., 268	6.8	6.7	5.3	6.3	26.92	28.79	28.72	28.14	60.3	—9.4
Spring	69	49	66	97	18	.258	.274	.280	.691	.085	14.117	S. 76° 32′ W., 148	5.5	6.1	4.9	5.5	38.86	39.79	41.03	39.89	68.3	14.8
Summer . . .	72	53	71	95	29	.534	.555	.557	1.014	.162	13.591	S. 73° 8′ W., 182	5.3	5.6	4.4	5.1	59.68	60.49	61.06	60.41	79.7	29.3
Autumn . . .	77	55	72	97	23	.308	.326	.331	.658	.065	14.785	N. 69° 12′ W., 281	5.9	5.9	4.8	5.5	43.15	44.34	45.03	14.17	66.8	8.9
For eight years.	77	58	73	100	13	.328	.348	.350	1.059	.013	44.603	N. 74° 13′ W., 214	5.9	6.0	4.4	5.4		43.94			79.7	—16.5

TABLE I.—*Mortality for the year* 1859, *Collated from*

DISEASES.	FIRST QUARTER, COMMENCING JANUARY 1, 1859.									SECOND COMMENCING					
	Jan.		Feb.		March		Adults.	Minors.	Total.	April.		May.		June.	
	M.	F.	M	F.	M	F.				M.	F.	M	F.	M.	F.
Abscess	3	1	2	..	4	3	8	5	13	3	4	2	..	..	..
" of liver	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Amenorrhœa	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..
Anæmia	..	..	..	..	..	2	2	..	2	..	1	..	..	1	1
Aneurism	1	..	1	..	2	..	4	..	1	1	..	..	..	..	..
Apoplexy	8	3	3	2	5	3	24	..	24	2	4	1	4	5	2
Asphyxia	2	..	1	3	1	1	1	7	8	2	1	2	..	..	3
Asthma	1	2	3	..	1	..	5	2	7	1	..	1	2	1	..
Cancer and scirrhus	..	2	..	..	1	..	2	1	3	1	3	..	..	2	4
" of the stomach	..	3	1	4	3	..	11	..	11	2	2	2	3	..	3
" " rectum	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
" " uterus	..	..	..	4	..	8	12	..	12	..	2	..	..	..	5
Casualties	11	1	10	1	3	3	19	10	29	11	5	6	1	17	4
Burns and scalds	5	3	..	2	..	2	3	9	12	1	2	2	1	2	4
Drowned	..	1	1	..	5	..	6	1	7	3	..	10	2	15	1
Exposure	..	..	..	..	..	..	..	..	..	3	..	..	..	..	..
Fracture	1	..	..	..	..	1	2	..	2	1	..	..	1	1	1
" of pelvis	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Neglect and want	..	..	..	..	..	..	..	..	..	..	..	2	1	4	2
Poisoning	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Suicide	..	1	..	..	..	1	2	..	2	1	..	1	..	1	1
Violence	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..
Cholera infantum	..	..	..	..	..	..	..	..	..	4	2	5	5	31	32
" morbus	..	..	..	..	..	..	..	..	..	..	..	..	..	2	4
Chlorosis	..	..	..	..	..	1	..	1	1	..	..	..	..	..	..
Congestion of the brain	13	4	14	4	8	11	26	28	54	6	5	12	4	12	8
" " lungs	3	3	3	8	10	11	19	19	38	4	5	4	4	4	1
Consumption of the lungs	65	56	68	57	78	75	377	22	399	72	70	66	47	68	56
Convulsions	19	19	29	31	37	21	11	145	156	18	9	22	22	26	28
Croup	17	17	11	17	16	14	..	92	92	12	16	10	11	4	6
Cyanosis	1	..	5	2	..	2	..	10	10	..	2	1	2	2	1
Coup de soleil	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
Debility	20	22	13	24	27	22	58	70	128	17	14	21	23	25	25
Diabetes	1	..	..	..	..	..	1	..	1	..	..	..	..	..	..
Diarrhœa	1	1	3	2	6	6	13	6	19	4	2	2	3	5	5
Disease of the brain	10	3	9	..	9	2	20	13	33	7	5	5	1	16	9
" " heart	13	11	12	17	16	10	68	11	79	12	4	4	7	7	13
" " kidneys	1	2	2	..	..	..	3	2	5	..	..	..	..	..	..
" " liver	1	..	..	1	..	..	2	..	2	1	2	3	..	3	1
" " spine	..	3	..	1	..	..	1	3	4	2	1	..	1	1	2
Dropsy of the brain	8	9	10	10	10	10	2	55	57	16	4	11	10	18	11
" " chest	6	6	4	4	6	6	31	1	32	2	8	3	40	8	15
" " heart	..	1	1	..	..	..	1	1	2	..	2	1	..	1	..
Dysentery	..	3	4	1	3	1	7	5	12	4	..	5	2	15	16
Dyspepsia	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Effusion on the brain	3	3	5	1	5	5	2	20	22	3	2	1	5	2	2
Epilepsy	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Erysipelas	2	4	4	6	4	..	7	13	20	4	3	2	4	6	6
Exhaustion	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..
Fever, bilious	1	..	2	1	2	..	6	..	6	2	..	..	3	4	3
" enteric	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
" intermittent	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
" puerperal	..	5	..	8	..	3	15	1	16	..	6	..	5	..	1
" remittent	2	..	..	..	..	..	1	1	2	..	..	..	1	..	..
" scarlet	4	7	13	15	13	15	..	67	67	6	9	5	8	13	12
" typhoid	12	10	13	10	17	12	45	29	74	13	8	15	16	10	6
" typhus	3	3	3	1	2	2	9	5	14	1	1	5	..	3	4
Gangrene	1	1	2	..	3	2	6	3	9	..	..	1	1	..	..
Gout	1	..	..	..	1	..	2	..	2	..	..	..	..	..	..
" of the heart	1	..	..	..	..	..	1	..	1	..	..	..	..	..	..
Hemorrhage	2	3	1	1	..	..	4	3	7	1	3	1	..	..	1
" of the bowels	..	..	1	..	..	..	1	..	1	..	..	..	..	..	..
" " lungs	..	..	1	1	3	4	7	2	9	..	1	4	2	1	1
" " uterus	..	..	..	2	..	1	3	..	3	..	1	..	1	..	..
Hernia	..	..	1	1	1	..	3	..	3	..	..	..	..	..	..
Hooping-cough	..	2	1	3	2	1	..	9	9	4	..	1	4	..	2
Hysteria	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Inanition	2	4	2	3	9	1	3	18	21	3	3	3	6	4	2
Inflammation of the brain	19	14	14	11	19	21	16	82	98	24	9	11	9	17	18

Returns made to the Health Office. By WILSON JEWELL, M. D.

QUARTER, APRIL 2, 1859.			THIRD QUARTER, COMMENCING JULY 2, 1859.									FOURTH QUARTER, COMMENCING OCTOBER 1, 1859.									Total for the year.
Adults.	Minors.	Total.	July.		Aug.		Sept.		Adults.	Minors.	Total.	Oct.		Nov.		Dec.		Adults.	Minors.	Total.	
			M.	F.	M.	F.	M.	F.				M.	F.	M.	F.	M.	F.				
4	5	9	1	..	2	..	..	..	1	2	3	2	..	2	1	2	2	5	4	9	34
1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
2	1	3	1	1	2	2	2	..	3	5	8	1	..	..	1	1	..	2	1	3	16
1	..	1	..	1	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	6
19	2	21	1	..	5	3	3	4	16	..	16	3	5	5	6	7	5	26	5	31	92
2	6	8	..	..	1	1	1	..	..	3	3	..	2	3	1	1	1	..	8	8	27
4	1	5	..	..	1	2	..	..	2	1	3	1	..	..	1	1	4	6	1	7	22
9	1	10	..	..	3	2	3	3	10	1	11	..	1	5	7	2	2	15	2	17	41
10	2	12	4	..	2	1	..	..	7	..	7	1	1	2	3	..	..	6	1	7	37
..	..	..	1	..	1	..	..	..	2	..	2	..	..	..	..	..	..	..	..	..	2
7	..	7	..	5	..	9	..	7	21	..	21	..	4	..	3	..	5	12	..	12	52
28	16	44	6	2	8	2	7	1	13	13	26	6	4	14	1	12	5	28	14	42	141
5	7	12	5	6	1	2	2	..	6	10	16	5	1	1	4	2	3	3	13	16	56
20	11	31	11	2	20	..	13	..	25	21	46	3	..	6	..	2	..	9	2	11	95
3	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3
2	2	4	1	..	1	1	1	1	5	..	5	1	..	1	..	..	..	2	..	2	13
..	..	..	..	..	..	..	1	..	..	1	1	..	..	..	..	..	..	..	..	..	1
7	2	9	1	1	..	..	3	1	1	5	6	1	..	2	3	1	1	4	4	8	23
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	1	1
4	..	4	1	..	3	1	3	2	8	2	10	..	..	1	2	2	..	5	..	5	21
2	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
..	79	79	102	92	47	57	14	9	..	321	321	3	4	1	..	..	..	..	8	8	408
1	5	6	5	8	5	..	..	..	13	5	18	..	..	..	..	..	..	..	..	..	24
..	..	..	..	..	..	..	..	..	..	..		..	..	..	..	..	..	..	..	..	1
23	24	47	13	15	12	12	7	6	20	45	65	7	8	12	4	9	8	17	31	48	214
10	12	22	2	4	4	1	1	6	9	9	18	4	3	2	2	7	12	12	18	30	108
351	28	379	54	57	70	67	49	46	291	52	343	51	61	74	82	65	51	335	49	384	1505
4	121	125	23	24	30	25	17	11	9	121	139	21	8	24	25	18	13	8	101	109	520
1	58	59	7	9	5	11	7	5	..	44	44	15	13	23	30	22	14	..	117	117	312
..	8	8	3	2	5	3	1	1	..	15	15	2	1	3	2	3	..	..	11	11	44
1	..	1	3	..	1	..	..	..	4	..	4	..	..	..	..	..	..	..	..	..	5
55	60	115	32	21	29	25	16	13	58	78	136	18	24	14	13	14	20	58	45	103	482
..	..	..	..	1	..	..	..	..	1	..	1	..	..	1	..	..	..	1	..	1	3
7	14	21	18	28	11	8	5	5	64	11	75	2	1	1	3	1	3	9	2	11	126
14	29	43	9	6	7	4	8	3	25	12	37	8	2	10	5	3	..	21	7	28	141
29	18	47	6	7	9	6	5	5	26	12	38	8	8	11	5	8	8	34	14	48	212
..	..	..	..	..	2	1	1	1	4	1	5	2	1	2	2	3	1	9	2	11	21
6	4	10	..	..	..	..	..	..	..	..	..	..	..	..		..	..	..	..	..	12
3	4	7	..	..	..	1	..	..	..	1	1	1	1	2	1	1	..	1	5	6	18
..	70	70	17	18	17	8	6	6	..	72	72	5	5	5	7	8	5	2	33	35	234
43	3	46	5	6	10	10	5	6	39	3	42	4	8	8	8	7	4	35	4	39	159
2	2	4	..	..	2	1	1	..	2	2	4	1	1	1	1	1	3	7	1	8	18
18	24	42	11	13	20	12	5	2	18	45	63	4	1	2	3	1	1	10	2	12	129
..	..	..	..	..	..	..	..	1	1	..	1	..	..	..	..	..	..	..	..	..	1
4	11	15	5	7	8	6	1	1	3	25	28	1	2	..	2	3	3	3	8	11	76
..	..	..	..	1	..	..	..	..	..	1	1	..	1	..	1	3	1	5	1	6	7
6	19	25	2	..	1	1	2	..	4	2	6	2	2	7	1	3	4	8	11	19	70
1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
3	9	12	2	2	..	1	..	..	4	1	5	..	1	..	..	..	..	..	1	1	24
..	..	..	..	..	1	..	..	..	1	..	1	1	..	..	3	..	..	2	2	4	5
..	..	..	..	..	..	..	..	1	..	1	1	3	1	..	..	..	..	2	2	4	5
12	..	12	..	5	..	5	..	3	13	..	13	..	3	..	4	..	3	10	..	10	51
..	1	1	1	2	6	..	3	1	9	4	13	..	..	3	2	1	1	3	4	7	23
..	53	53	3	5	7	8	2	3	..	28	28	5	11	12	17	17	22	..	84	84	232
52	16	68	7	12	14	12	7	15	48	19	67	16	7	10	12	5	5	35	20	55	264
10	4	14	..	3	2	4	2	1	9	3	12	1	2	1	1	1	1	4	3	7	47
1	1	2	1	1	2	..	1	..	3	2	5	1	..	1	2	1	..	3	2	5	21
..	..	..	..	..	..	1	..	..	1	..	1	..	..	..	..	..	..	..	..	..	3
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
4	2	6	5	3	2	2	2	5	13	6	19	..	..	2	6	..	1	7	2	9	41
..	..	..	2	..	..	..	..	..	2	..	2	..	..	..	..	..	..	..	..	..	3
7	2	9	..	..	..	..	..	..	..	..	..	4	4	..	..	1	1	9	1	10	28
2	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2	..	2	7
..	..	..	..	1	1	1	..	..	3	..	3	1	2	2	1	1	1	8	..	8	14
..	11	11	1	3	2	2	3	3	..	14	14	3	3	3	4	3	2	..	18	18	52
..	..	..	..	..	..	1	..	..	1	..	1	..	..	..	..	..	..	..	..	..	1
2	19	21	6	8	16	10	5	5	6	44	50	7	4	4	6	5	5	3	28	31	123
74	14	88	18	13	16	18	18	8	11	80	91	12	6	10	11	7	7	14	39	53	330

TABLE I.—*Mortality*

DISEASES.	FIRST QUARTER, COMMENCING JANUARY 1, 1859.									SECOND COMMENCING					
	Jan.		Feb.		March.		Adults.	Minors.	Total.	April.		May.		June.	
	M.	F.	M.	F.	M.	F.				M.	F.	M.	F.	M.	F.
Inflammation of the bronchi	4	9	7	6	10	6	20	22	42	7	5	6	4	3	1
" " kidneys	1	1	..	..	..	..	2	..	2	..	..	..	..	..	..
" " larynx	..	1	1	2	4	1	3	6	9	..	2	1	4	1	2
" " liver	8	2	1	..	4	7	17	5	22	2	4	2	5	3	3
" " lungs	31	36	32	28	49	35	154	57	211	41	25	21	17	17	17
" " peritoneum	2	1	..	5	6	5	13	6	19	2	2	3	1	4	3
" " pleura	2	..	1	2	2	2	2	7	9	1	1	..	1	2	1
" " stomach & bowels	12	10	10	6	12	10	34	26	60	10	9	18	9	8	14
" " uterus	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Intussusception	..	..	..	..	2	..	1	1	2	..	..	..	1	..	1
Jaundice	1	2	..	..	2	3	3	5	8	2	1	1	..	1	..
Mania	..	..	1	..	..	..	1	..	1	..	..	..	1	..	..
Mania à potu	7	1	4	2	8	1	23	..	23	4	1	9	4	5	1
Marasmus	8	9	8	11	25	11	11	61	72	12	7	17	10	23	15
Measles	3	2	4	..	6	5	..	20	20	3	3	5	7	2	..
Mortification	2	1	..	..	..	1	2	2	4	..	2	..	2	1	..
Old age	9	9	8	13	11	17	67	..	67	8	8	10	20	9	15
Neuralgia	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Palsy	4	7	6	6	8	3	34	..	34	4	5	8	3	6	..
Purpura	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Pyæmia	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Rheumatism	1	1	1	1	..	2	4	2	6	..	..	1	1	..	1
Scrofula	1	2	1	3	1	2	2	8	10	2	3	4	3	2	6
Smallpox	..	..	1	..	..	..	..	1	1	..	..	..	..	..	..
Sore throat	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Stillborn	32	24	25	24	33	28	..	166	166	16	16	25	25	30	28
Syphilis	..	..	..	..	1	1	1	1	2	..	..	..	..	..	..
Tabes mesenterica	2	..	1	1	..	1	..	5	5	..	1	1	..	..	1
Teething	1	..	1	1	2	..	..	5	5	2	..	2	..	1	1
Tetanus	..	1	2	1	..	..	2	2	4	..	1	..	..	2	..
Thrush	..	..	..	..	1	..	..	1	1	..	..	..	..	..	..
Tumours	..	..	..	..	..	1	1	..	1	..	..	..	..	1	1
Ulceration	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..
" of the bowels	..	..	..	1	..	..	1	..	1	..	..	..	..	..	..
" " throat	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
Unknown	6	3	7	2	6	3	18	9	27	7	4	1	3	2	2
Worms	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Totals of the sex	401	355	395	374	525	428	1288	1190	2478	404	322	392	313	482	438

	FIRST QUARTER, COMMENCING JANUARY 1, 1859.						SECOND QUARTER, COMMENCING APRIL 2, 1859.					
	Jan.	Feb.	March.	Adults.	Minors.	Totals.	April.	May.	June.	Adults.	Minors.	Totals.
Under 1 year	197	214	260	..	..	671	173	181	298	..	..	652
From 1 to 2 years	64	60	98	..	..	222	56	79	92	..	..	227
" 2 to 5 "	55	69	85	..	..	209	78	63	74	..	..	215
" 5 to 10 "	25	24	18	..	..	67	30	22	27	..	..	79
" 10 to 15 "	8	9	17	..	..	34	15	12	16	..	..	43
" 15 to 20 "	18	21	37	..	..	76	22	22	21	..	..	65
" 20 to 30 "	83	82	101	..	..	266	81	81	80	..	..	242
" 30 to 40 "	83	89	86	..	..	258	86	79	86	..	..	251
" 40 to 50 "	64	63	83	..	..	210	56	57	72	..	..	185
" 50 to 60 "	49	46	54	..	..	149	47	49	51	..	..	147
" 60 to 70 "	41	33	45	..	..	119	43	36	43	..	..	122
" 70 to 80 "	37	35	45	..	..	117	22	34	38	..	..	94
" 80 to 90 "	30	20	20	..	..	70	13	15	18	..	..	46
" 90 to 100 "	1	2	4	..	..	7	4	5	3	..	..	12
" 100 to 110 "	1	2	..	..	..	3	..	..	1	..	..	1
Total of monthly mortality	756	769	953	..	..	..	726	735	920	..	..	..
Total males for the quarter	..	..	..	..	..	1321	..	..	..	..	..	1278
" females "	..	..	..	..	..	1157	..	..	..	..	..	1103
" adults "	..	..	..	1199	..	..	..	..	..	1100	..	..
" minors "	..	..	..	..	1279	..	..	..	..	..	1281	..
" for the quarter	..	..	..	..	..	2478	..	..	..	..	..	2381

for 1859—Continued.

QUARTER, April 2, 1859.			THIRD QUARTER, Commencing July 2, 1859.									FOURTH QUARTER, Commencing October 1, 1859.									Total for the year.
Adults.	Minors.	Total.	July.		Aug.		Sept.		Adults.	Minors.	Total.	Oct.		Nov.		Dec.		Adults.	Minors.	Total.	
			M.	F.	M.	F.	M.	F.				M	F.	M.	F.	M.	F.				
18	8	26	5	4	3	1	3	3	6	13	19	2	2	6	4	11	7	12	20	32	119
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
4	6	10	2	..	3	1	..	1	3	4	7	1	2	1	..	1	3	5	3	8	34
14	5	19	10	3	5	5	3	1	23	4	27	3	2	5	6	4	4	20	4	24	92
39	99	138	4	5	13	11	12	4	11	38	49	14	7	34	28	36	27	39	107	146	544
10	5	15	..	1	1	1	1	3	6	1	7	1	1	1	1	2	5	8	3	11	52
5	1	6	1	1	..	..	..	..	1	1	2	2	..	1	..	1	2	4	2	6	23
30	38	68	10	10	16	11	9	8	28	36	64	12	10	12	10	10	11	40	25	65	257
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	1	1
1	1	2	..	..	..	..	..	..	..	..	..	..	..	1	..	2	1	2	2	4	8
2	3	5	1	..	1	1	..	1	1	3	4	..	..	..	1	2	3	3	3	6	23
1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	2	..	2	4
24	..	24	3	1	6	2	3	..	15	..	15	4	1	7	1	5	2	20	..	20	82
10	74	84	23	33	39	40	16	15	9	157	166	12	4	7	7	7	7	9	35	44	366
..	20	20	1	5	1	2	1	..	..	10	10	..	..	..	..	1	..	..	1	1	51
4	1	5	..	..	1	..	..	1	2	..	2	..	..	1	2	..	..	2	1	3	14
70	..	70	3	10	9	8	6	3	39	..	39	5	2	4	11	7	5	34	..	34	210
1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	1	2
24	2	26	5	3	5	2	2	4	20	1	21	3	3	3	3	4	3	18	1	19	100
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	1	1
..	..	..	..	..	1	..	1	..	1	1	2	1	..	..	..	..	..	..	1	1	3
3	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9
5	15	20	..	1	3	2	2	1	1	8	9	1	..	4	7	3	1	5	11	16	55
..	..	..	..	..	1	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	2
..	..	..	..	1	2	1	2	2	1	7	8	2	3	..	2	1	4	1	11	12	20
..	140	140	22	24	29	27	29	27	..	158	158	29	28	38	36	33	30	..	194	194	658
..	..	..	..	..	..	1	1	..	2	..	2	..	..	..	..	..	1	1	..	1	5
..	3	3	6	4	3	5	3	1	1	21	22	..	2	1	..	1	..	..	4	4	34
..	6	6	2	3	2	1	1	..	..	9	9	..	..	..	..	1	1	..	2	2	22
1	2	3	1	..	1	..	..	..	1	1	2	3	..	..	1	1	..	5	..	5	14
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
2	..	2	..	..	..	1	..	1	2	..	2	..	3	1	1	3	2	9	1	10	15
..	1	1	..	..	..	..	3	..	2	1	3	1	3	1	2	..	..	5	2	7	11
..	..	..	1	1	..	1	2	..	4	1	5	..	..	..	..	..	..	..	..	..	6
1	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
12	7	19	..	2	4	..	3	5	9	5	14	4	2	7	3	4	3	16	7	23	83
..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
1161	1220	2381	496	507	563	474	336	272	1025	1623	2648	337	292	428	428	398	352	1062	1172	2235	9742

	THIRD QUARTER, Commencing July 2, 1859.						FOURTH QUARTER, Commencing October 1, 1859.					
	July.	Aug.	Sept.	Adults.	Minors.	Totals.	Oct.	Nov.	Dec.	Adults.	Minors.	Totals.
Under 1 year	450	395	188	..	..	1033	186	208	219	..	..	613
From 1 to 2 years	142	102	59	..	..	303	40	68	67	..	..	175
" 2 to 5 "	54	73	36	..	..	163	55	85	88	..	..	228
" 5 to 10 "	26	36	21	..	..	83	19	31	15	..	..	65
" 10 to 15 "	12	9	15	..	..	36	10	9	8	..	..	27
" 15 to 20 "	16	27	22	..	..	65	18	30	16	..	..	64
" 20 to 30 "	66	112	57	..	..	235	72	98	75	..	..	245
" 30 to 40 "	75	76	62	..	..	213	63	94	54	..	..	211
" 40 to 50 "	40	60	50	..	..	150	49	63	59	..	..	171
" 50 to 60 "	36	51	32	..	..	119	44	60	57	..	..	161
" 60 to 70 "	44	44	32	..	..	120	39	52	41	..	..	132
" 70 to 80 "	19	23	19	..	..	61	18	37	30	..	..	85
" 80 to 90 "	15	27	13	..	..	55	16	20	20	..	..	56
" 90 to 100 "	7	2	1	..	..	10	..	1	1	..	..	2
" 100 to 110 "	1	..	1	..	..	2	..	..	..	..	..	..
Total of monthly mortality	1003	1037	608	..	..	..	629	856	750	..	..	..
Total males for the quarter	..	..	..	..	..	1395	..	..	..	..	..	1163
" females "	..	..	..	..	..	1253	..	..	..	..	..	1072
" adults "	..	..	..	965	..	..	..	..	..	1063	..	..
" minors "	..	..	..	..	1683	..	..	..	..	..	1172	..
" for the quarter	..	..	..	..	..	2648	..	..	..	..	..	2235

TABLE II.—*Mortality from Diseases of the Lungs and Air-passages.*

DISEASES.	ANNUAL AGGREGATES.			QUARTERS OF 1859.			
	1857.	1858.	1859.	1st.	2d.	3d.	4th.
Angina pectoris	1	...	...	...	...	...	...
Asphyxia	15	37	27	8	8	3	8
Asthma	33	12	22	7	5	3	7
Catarrh	33	22	...	...	...	...	...
Congestion of the lungs	132	78	108	38	22	18	30
Consumption " "	1514	1659	1505	399	379	343	384
Croup	256	292	312	92	59	44	117
Disease of the chest	7	11	...	...	...	...	...
" lungs	53	23	...	...	...	...	...
Dropsy of the chest	48	140	159	32	46	42	39
Effusion on the chest	3	...	...	...	...	...	...
" lungs	4	...	...	...	...	...	...
Emphysema	1	...	...	...	...	...	...
Empyema	1	...	...	...	...	...	...
Gangrene of the lungs	1	...	...	...	...	...	...
Hemorrhage from the lungs	18	...	28	9	9	...	10
Influenza	9	...	...	...	...	...	...
Inflammation of the bronchi	179	100	119	42	26	19	32
" " chest	16	1	...	...	...	...	...
" " larynx	14	...	34	9	10	7	8
" " lungs	504	562	544	211	138	49	146
" " pleura	27	2	23	9	6	2	6
" " trachea	11	...	...	...	...	...	...
Totals	2910	2939	2881	856	708	530	787
Hooping-cough	51	153	52	9	11	14	18
Totals	2961	3092	2933	865	719	544	805
Total mortality, exclusive of stillborn	10338	10162	9084				
Per cent. from diseases of the lungs	28.13	30 43	32.17				
Per cent. from consumption of the lungs	14.93	16.38	16.56				

TABLE III.—*Deaths from Consumption of the Lungs, during each Month in the year* 1859, *at fourteen distinct periods of life, with the Sexes designated for each month.*

AGES.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Under 1 year	...	...	1	...	...	1	1	1	...	1	1	2	8
From 1 to 2 years . .	...	...	...	...	...	1	1	1	2	...	1	...	6
" 2 to 5 " . .	...	...	...	1	...	...	3	2	...	3	1	...	10
" 5 to 10 " . .	...	...	...	2	1	...	2	2	1	...	2	1	11
" 10 to 15 " . .	...	...	2	2	...	2	3	1	2	1	1	1	15
" 15 to 20 " . .	1	7	11	6	8	4	3	15	12	8	20	6	101
" 20 to 30 " . .	37	45	51	44	36	39	36	61	26	33	54	33	495
" 30 to 40 " . .	39	44	39	39	34	35	30	28	24	32	38	27	409
" 40 to 50 " . .	22	18	26	28	13	22	19	16	18	13	12	21	228
" 50 to 60 " . .	9	7	14	9	12	9	2	7	7	10	14	16	116
" 60 to 70 " . .	4	3	5	9	7	7	10	2	3	7	8	7	72
" 70 to 80 " . .	6	1	3	1	2	3	...	1	...	2	3	1	23
" 80 to 90 " . .	3	...	1	1	...	1	...	...	...	2	1	1	10
" 90 to 100 " . .	...	...	...	...	...	...	1	...	...	...	...	...	1
Male	65	68	78	72	66	68	54	70	49	51	74	65	780
Female	56	57	75	70	47	56	57	67	46	61	82	51	725
Monthly totals . . .	121	125	153	142	113	124	111	137	95	112	156	116	1505
Quarterly totals . . .	399			379			343			384			1505

TABLE IV.—*Mortality from Diseases of the Nervous System.*

DISEASES.	ANNUAL AGGREGATES.			QUARTERS OF 1859.			
	1857.	1858.	1859.	1st.	2d.	3d.	4th.
Apoplexy	115	111	92	24	21	16	31
Chorea	1	...	...	...	...	...	...
Coma	1	...	...	...	...	...	...
Concussion of the brain	7	1	...	...	...	...	...
Congestion of the brain	201	241	214	54	47	65	48
Convulsions	556	609	520	156	125	130	109
Coup de soleil	6	26	5	...	1	4	...
Cramp	10	...	...	...	...	...	...
Disease of the brain	100	134	141	33	43	37	28
Dropsy of the brain	173	261	234	57	70	72	35
Effusion of the brain	92	72	76	22	15	28	11
Epilepsy	18	2	7	...	...	1	6
Inflammation of the brain	306	315	330	98	88	91	53
Mania or insanity	7	9	4	1	1	...	2
Mania à potu	62	85	82	23	24	15	20
Neuralgia	...	1	2	...	1	...	1
Palsy	92	105	100	34	26	21	19
Softening of the brain	14	3	...	...	...	...	...
Teething	17	12	22	5	6	9	2
Tetanus	11	13	14	4	3	2	5
Trismus	2	...	...	...	...	...	...
Totals	1791	2000	1843	511	471	491	370
Total mortality, exclusive of stillborn	10338	10162	9084				
Per cent. of total mortality . .	17.33	19.58	20.28				

TABLE V.—*Mortality from Diseases of the Organs of Nutrition.*

DISEASES.	ANNUAL AGGREGATES.			QUARTERS OF 1859.			
	1857.	1858.	1859.	1st.	2d.	3d.	4th.
Abscess	35	31	34	13	9	3	9
" of the liver	1	...	1	...	1	...	...
Cancer of the stomach and bowels	7	...	39	11	12	9	7
Cholera	3	...	...	...	...	...	...
" infantum	534	662	408	...	79	321	8
" morbus	10	53	24	...	6	18	...
Cirrhosis of the liver	3	...	...	...	...	...	...
Colic	7	...	...	...	...	...	...
Constipation	...	1	...	...	...	...	...
Consumption of the bowels	5	...	...	...	...	...	...
Diarrhœa	119	138	126	19	21	75	11
Disease of the liver	41	68	12	2	10	...	...
" stomach and bowels	17	12	...	...	...	...	...
Dropsy	239	95	...	...	...	...	...
" abdominal	6	...	...	...	...	...	...
Dysentery	198	240	129	12	42	63	12
Dyspepsia	2	1	1	...	...	1	...
Gout	5	1	3	2	...	1	...
Icterus	11	16	23	8	5	4	6
Inflammation of the liver	25	30	92	22	19	27	24
" " peritoneum	56	55	52	19	15	7	11
" " stomach and bowels	299	273	257	60	68	64	65
Intussusception	4	2	8	2	2	...	4
Marasmus	506	463	366	72	84	166	44
Obstruction of the bowels	2	2	...	...	...	...	...
Scrofula	51	54	55	10	20	9	16
Tabes mesenterica	44	56	34	5	3	22	4
Ulceration of the stomach and bowels	6	...	6	1	5	...	...
Totals	2236	2253	1670	258	401	790	221
Total mortality, exclusive of stillborn	10338	10162	9084				
Per cent. of total mortality	21.62	22.17	18.38				

TABLE VI.—*Mortality from Diseases of the Urino-Genital Organs.*

DISEASES.	ANNUAL AGGREGATES.			QUARTERS OF 1859.			
	1857.	1858.	1859.	1st.	2d.	3d.	4th.
Albuminuria	7	1	...	...	...	...	...
Amenorrhœa	...	...	1	...	1	...	...
Cancer of uterus	4	...	52	12	7	21	12
Childbed	7	1	...	...	...	...	...
Chlorosis	1	...	1	1	...	...	...
Convulsions, puerperal	1	...	...	...	...	...	...
Diabetes	7	3	3	1	...	1	1
Disease of the bladder	1	1	...	...	...	...	...
" kidneys	8	...	21	5	...	5	11
" ovaries	2	...	...	...	...	...	...
" uterus	2	...	...	...	...	...	...
Fever, puerperal	49	36	51	16	12	13	10
Hemorrhage from uterus	5	...	7	3	2	...	2
Inflammation of the bladder	9	3	...	...	...	...	...
" " kidneys	7	7	2	2	...	...	...
" " uterus	8	...	...	...	...	...	...
Rupture of the urethra	1	...	...	...	...	...	...
Strangury	...	8	...	...	...	...	...
Suppression of urine	3	...	...	...	...	...	...
Syphilis	2	3	5	2	...	2	1
Tumour, ovarian	1	...	...	...	...	...	...
Ulceration of the uterus	1	...	...	...	...	...	...
Totals	126	63	143	42	22	42	37
Total mortality, exclusive of stillborn	10338	10162	9084				
Per cent. of total mortality	1.21	0.62	1.75				

TABLE VII.—*Mortality from Fevers.*

DISEASES.	ANNUAL AGGREGATES.			QUARTERS OF 1858.			
	1857.	1858.	1859.	1st.	2d.	3d.	4th.
Fever	3	...	...	...	...	...	...
" bilious	25	43	24	6	12	5	1
" cerebral	2	1	...	...	...	...	...
" congestive	5	1	...	...	...	...	...
" continued	2	...	...	...	...	...	...
" enteric	2	...	5	...	...	1	4
" gastric	4	...	...	...	...	...	...
" hectic	2	...	...	...	...	...	...
" intermittent	5	2	5	...	...	1	4
" malignant	...	...	...	...	...	...	...
" nervous	9	1	...	...	...	...	...
" pernicious	...	...	...	...	...	...	...
" puerperal	49	36	51	16	12	13	10
" remittent	23	17	23	2	1	13	7
" scarlet	704	241	232	67	53	28	84
" typhoid	175	197	264	74	68	67	55
" typhus	38	71	47	14	14	12	7
" " icterodes	...	16	...	...	...	...	...
" yellow	...	...	...	...	...	...	...
Totals	1048	626	651	179	160	140	172
Total mortality, exclusive of stillborn	10338	10162	9084				
Per cent. of total mortality	10.13	6.16	7.16				

TABLE VIII.—*Deaths, showing the Sexes, for each Month in the Year, and the Number at Fifteen Distinct Periods of Life, with the Percentages at each Period to the Total Mortality, Exclusive of Stillborn—also the number of Stillborn Children for each Month, and their Sexes.*

MONTHS.	STILLBORN.			Males.	Females.	Boys.	Girls.	Under 1 year.	1 to 2.	2 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	80 to 90.	90 to 100.	100 to 110.	Total.	Monthly per cent. of deaths to total.
	M.	F.	Total.																					
January	32	24	56	401	355	188	179	197	64	55	25	8	18	83	83	64	49	41	37	30	1	1	756	7.76
February	25	24	49	395	374	210	187	214	60	69	24	9	21	82	89	63	46	33	35	20	2	2	769	7.89
March	33	28	61	525	428	286	229	260	98	85	18	17	37	101	86	83	54	45	45	20	4	...	953	9.78
April	16	16	32	404	322	211	163	173	56	78	30	15	22	81	86	56	47	43	22	13	4	...	726	7.46
May	25	25	50	392	343	199	180	181	79	63	22	12	22	81	79	57	49	36	34	15	5	...	735	7.54
June	30	28	58	482	438	275	253	298	92	74	27	16	21	80	86	72	51	43	38	18	3	1	920	9.45
July	22	24	46	496	507	344	356	450	142	54	26	12	16	66	75	40	36	44	19	15	7	1	1003	10.29
August	29	27	56	563	474	340	302	395	102	73	36	9	27	112	76	60	51	44	23	27	2	...	1037	10.64
September	29	27	56	336	272	196	145	188	59	36	21	15	22	57	62	50	32	32	19	13	1	1	608	6.24
October	29	28	57	337	292	172	156	186	40	55	19	10	18	72	63	49	44	39	18	16	...	...	629	6.46
November	38	36	74	428	428	213	218	208	68	85	31	9	30	98	94	63	60	52	37	20	1	...	856	8.78
December	33	30	63	398	352	215	198	219	67	88	15	8	16	75	54	59	57	41	30	20	1	...	750	7.69
Totals	341	317	658	5157	4585	2849	2566	2969	927	815	294	140	270	988	933	716	576	493	357	227	31	6	9742	
Per ct. of totals				52.83	47.06	29.24	26.34	30.47	9.51	8.26	3.01	1.43	2.77	10.14	9.57	7.35	5.90	5.06	3.66	2.22	0.31	0.06		

Table I. The mortality of our city for 1859, as found in this table, which is in accordance with the record furnished at the health office, has amounted to 9,742. This number of deaths is 955, or nearly 9 per cent. less than those for 1858, and 12.19 per cent. less than the average of deaths for the past four years.

Should the population of Philadelphia reach the estimate recently ascribed to it in our daily journals, of 650,000—which is a liberal calculation—the mortality gives but one death in every 66.72 of the population, or 14.98 deaths to every 1,000 living. Not willing, however, to be adjudged as introducing an exaggerated statement into my report, I prefer to fix the standard at what I conceive to be a more reliable calculation, and base the estimates upon a population of 625,000. From this assessment, it will be found that the deaths amounted to only 1.55 per cent.—or equal to 1 in every 64.15—or as 15.58 in each 1,000 of the population.

This death rate of 15 in each 1,000 of the population, is less by 2 in 1,000, than the standard affixed to the death rate of about a million of people residing in sixty-four districts selected from various parts of England, and who were living under the least unfavourable sanitary condition. It will be remembered, also, that the death rate in large cities is affixed at a much higher point than in rural districts. In London, it is 25 in every 1,000. In New York city in 1859, estimating the population at 800,000, the death rate was 27 in 1,000.

A comparison of the rate of mortality to population of our own with several other cities, will show still more clearly the striking difference in the death rate pressure upon populations in different places.

	Population.	Mortality.	Ratio of deaths to pop.	Deaths to each 1,000.	Per cent. of deaths to pop.
Providence .	52,000	982	1 in 52.09	19	1.83
Boston . .	180,000	3,738	1 in 48.15	21	2.07
New York .	800,000	21,645	1 in 36.09	27	2.70
Philadelphia	625,000	9,742	1 in 64.15	15	1.55
Baltimore .	253,000	5,039	1 in 50.02	20	2.

These figures are from official records, and may be relied upon. Consulting the several death rolls, we will have an approximation, at least, towards a comparison of the healthiness of the cities named. The most glaring inequality will be found to exist between the death rate to population of our own city, and that of our sister city New York. Notwithstanding this marked disparity of the low rate of 1 in 64.15 in this city, and the high rate of 1 in 36.09 in New York; the city inspector of the latter city holds the following language in his annual report—"New York city at this day can lay claim to the privilege of being numbered with those of the most healthy in the world." It is unnecessary to comment upon this extraordinary statement, when the above figures contradict so positively the assertion; still, it is to be regretted that the inspector had not availed himself of the above statistical information, which would have obliged him to have presented a widely different statement, although one indicating a more severe pressure of sanitary evils upon the health of their population, than his report develops.

Providence, R. I., has of late been characterized as one of the best regulated cities in the country, in a sanitary point of view. My knowledge of the accurate manner in which the city registrar, Dr. Snow, performs the duties of his office, especially in that department which relates to the hygienic defences of life, confirms this opinion. Nevertheless, in comparing the figures in the above table, I find that the death rate in our own city is as 1 in 12 less than in Providence, and 4 deaths fewer in every 1,000 living; while the percentage of deaths to population is $\frac{28}{100}$ less. In each of the other cities named, in the above table, the difference is still greater in favour of the health of Philadelphia.

The returns, therefore, of deaths for 1859, present a very high standard of salubrity for our city, equal to, if not surpassing, that of the most healthy city in the world.

Nor should I be surprised, if the correctness of our returns made to the health office of the mortality of the city be questioned by sanitarians abroad. In order to meet this distrust, I have instituted a rigid scrutiny into the manner by which the weekly returns of deaths are made at the health office, and the sources from whence they are received, but am unable to discover any defect upon which I could build a reasonable doubt that they do not comprehend all the interments that are made during the year.

The unusual health of our city during the year, has been the subject of frequent discussion among the fellows of this College, as well as by the papers of the day; and I feel assured that every practising physician is competent to furnish a commentary, illustrative of the fact that there has prevailed an unusual scarcity of cases of disease.

No epidemic has visited us, nor have our usual endemics prevailed to any extent. In many instances the diseases of the different seasons have been less frequent and more mild in their character.

During the fall and winter months and in the early spring, croup, and inflammation of the bronchia and lungs among children were the prevailing diseases. With croup, there was observed the steady increase in the number of fatal cases which I have alluded to in several former reports. In inflammation of the lungs, the deaths did not reach the number recorded for 1858. There was nothing, however, unusual in any of the winter diseases, beyond their general characteristics. Scarlet fever, which had prevailed to a great extent for several previous years, was still among us when the year opened. For the most part, the cases which occurred did not present a highly malignant type of fever, and yielded readily to a mild treatment. The deaths, however, were nearly equal to those of the previous year, and amounted to 232.

I cannot omit to mention in this place the appearance of a few cases of diphtheria, or malignant or putrid sore throat. Towards the latter end of the year these cases increased in number; several of them were fatal, but whether they were certified to and classed in the record with sore throat, scarlet fever, or croup, I am unable to determine, as I find no death recorded from diphtheria. I did not witness a single malignant case of this fatal disease in my own practice, but in a number of cases of sore throat, accompanied with high fever, vomiting, frequent pulse and red tongue, which came under my care, I observed a remarkable tendency to congestion of the mucous tissue of the fauces of a dark livid hue, to the exudation of a whitish plastic lymph and minute points of ulceration. These cases were accompanied with great debility of the system. They were evidently characteristic of the epidemic of diphtheria, but in a mild form, as none proved fatal.

None of these cases were in any manner involved with scarlet fever, and in one instance the patient had passed through that disease a few months previously thereto. Nor did any of them resemble croup.

How nearly this malignant form of disease which has prevailed in several of our large cities and towns, to an extent sufficient to create alarm, is identified with scarlet fever, or with membranous croup, or whether it derives its origin from a distinct and peculiar poison, becomes an important question for solution. The indications are, that ere long we may have to combat this formidable enemy, which, as yet, particularly in its malignant type, has resisted, in a majority of instances, the most watchful and judicious treatment.

The invasion of cholera infantum took place about the usual period of the summer, and was most prevalent in July. Its ravages by death, however, were not so great by 254, as during the previous year. The number of deaths recorded were 408, a less mortality, compared to population or deaths from all diseases, than has occurred for many years. The cause of this remarkable diminution in the deaths from this infantile endemic may be ascribed, in part, to the favourable condition of the summer heat, which was 2 degrees below the average for the previous eight years, to the absence of a choleraic influence, and the increased facilities for hygienic protection afforded that class of the population who are deprived of the advantage of a pure atmosphere in their unventilated houses. They are now enabled by cheap rides, in easy and commodious city railroad cars, in almost every direction, to reach within a few minutes the rural environs of our city, where, with their feeble, sickly and emaciated offspring, they can enjoy the luxury of inhaling the pure, cool and invigorating air of the country.

Of the entire number of deaths for the year, 5,157 were males, and 4,585 were females. This proportion shows an excess of deaths in the males of 12.52 per cent., and is in keeping with the records of our mortality of sexes for a number of years past.

Stillborn children foot up 658 during the year. These, with the deaths from casualties of various kinds, and from debility and old age, amounting in all to 1,709, should be deducted from the total mortality, in order to ascertain more correctly the deaths from morbific causes. By this arrangement I find that only 8,033 deaths, or one in every 76.5 of the population, were caused by the effect of diseases, thus presenting our sanitary position in a still more favourable light.

Of all the deaths, including stillborn, 2,969 perished before the expiration of the first year of life. Between the ages of one and two, 927 died; between two and five, 815; between five and ten years, 294. It will be seen, therefore, that 5,005, or 51.37 per cent., more than half of the annual mortality, occurred before the tenth year of life. This large proportion of infant mortality in our city, presents a melancholy picture of the continued prevalence of every variety of sanitary evils, not exempting swill milk. These, together with the mismanagement of children on the part of parents and others, who have the oversight of this interesting portion of our population, are the prominent causes for the fatality among them. In several former reports, I have called the attention of the fellows of the College to this single item of our annual mortality. I would again impress upon them the importance, nay the sacred duty, not only of arousing the public conservators of health to the necessity for the institution of a sanitary medical police, but the enforcement of ordinances drafted in accordance with the laws of health and life. Nor is it of less importance, through a special committee, to make such inquiries and investigations, as will lead to a knowledge of the true causes of the alarming waste of infantile life. This course of action may lead to measures of sanitary reform, that will prove influential not only in removing the various preventable causes of disease that exist in our midst, but in diminishing the fearfully increasing amount of infant mortality.

The deaths under twenty years were 5,415, while those above that age were 4,327. This division gives 55.58 per cent. of the mortality to children, or those under twenty, that period constituting the division line between adults and children. In 1858, the deaths in New York city, of those under twenty, were 67.70 per cent. of the whole number, an excess of 14.32 per cent. over those of our own city for the same year and the like period.

The highest number of deaths recorded in any one decennial period, beyond those in the first ten years of life, will be found between twenty and thirty years, amounting to 988. From this period, the deaths gradually decreased, in each succeeding decade, up to between eighty and ninety, when they were 227. Beyond that age, the number of deaths reached but 37, and of these, only six were centennarians.

The greatest mortality in any month was in August, viz., 1,037; while the least, 608, was in the following month of September. July, however, presented the highest rate of mortality among children, or those under 20 years, to wit, 700.

I have prepared the following table to illustrate, at a glance, the diseases which have been so fruitful during the year in swelling the amount of mortality among children, together with the number of deaths from each source, and the monthly periods when they proved most fatal.

Mortality among Children.

DISEASES.	Annual total.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	HIGHEST MONTH.	LOWEST MONTHS.
Congestion of the brain . .	131	6	9	13	6	7	14	19	18	8	10	11	10	July	January and April.
Cholera infantum . . .	408	...	...	...	6	10	63	194	104	23	7	1	...	July	Jan., Feb., Mar., and Dec.
Convulsions	488	37	57	51	27	42	52	43	52	26	25	46	30	February	October.
Croup	311	34	28	30	27	21	10	16	16	12	28	53	36	November	June.
Debility	253	24	16	30	15	18	27	33	31	14	16	10	19	July	November.
Dropsy of the brain . . .	230	16	20	19	20	21	29	35	25	12	10	10	13	July	October and November.
Fever, scarlet	232	11	28	28	15	13	25	8	15	5	16	29	39	December	September.
Marasmus	328	13	16	32	15	26	33	53	75	30	13	13	9	August	December.
Inflammation of the brain .	275	28	22	32	29	16	29	27	28	25	12	16	11	March	December.
" " lungs .	398	48	45	61	45	32	22	9	18	11	17	39	51	March	July.
Total	3054	217	241	296	205	206	304	437	382	166	154	228	218		
Stillborn	658	56	49	61	32	50	58	46	56	56	57	74	63	November	April.
	3712	273	290	357	237	256	362	483	438	222	211	302	281		

This table furnishes an account of 3,054 deaths. Of these, 2,396 are charged to only ten diseases, and 658 are recorded stillborn. Convulsions maintains its ascendency over all other diseases of infancy, in producing death. It numbers 488, and exceeds cholera infantum by 80. The seasons of the year appear to exert very little influence upon the deaths from convulsions, as there is a striking uniformity in the numbers for each month. Not so, however, with cholera infantum and croup. In the former, there is a great disparity, as during the three winter, and the first spring months, there was not a single death recorded; while in the month of June there were 63; in July, 194; in August, 104 deaths. Croup was most fatal in November, when there were 53 deaths, and least fatal in June, when there were only 10 deaths. The winter months also proved more fatal than the spring or summer.

Marasmus was the cause of 328 deaths inserted in this table. The summer months exhibit a large increase over all others. The highest rate was in August, 75, and the lowest in December, 9.

Inflammation of the lungs, which stands quite prominent, furnished 398 deaths, and was most fatal during the winter and spring months.

The stillborn, numbering 658, which I have added to this table, and are equal to about 7 per cent. of all the deaths, present less than the usual uniformity of numbers for each month. The highest rate of these deaths was in November, viz., 74, and the lowest 32, in April. The months of January, June, August, September, and October, however, varied only between 56 and 58 in each month.

Table II. The deaths from diseases of the lungs and air-passages are given in this group, and amount to 2,933, or 32.17 per cent. of all the deaths for the year, exclusive of stillborn. This percentage shows higher than in 1858, when it was only 30.43 per cent., for the reason that the annual aggregate mortality is less than in 1858.

The most striking feature in this table is the falling off of the deaths from hooping-cough, as compared with the previous year, when they rated 153. This year, they were only 52, a decrease of 101, equal to 66 per cent.

Croup, which I have already alluded to, is still on the increase. The first and last quarters of the year, which include the winter months, present the highest mortality.

Asthma, congestion of the lungs, dropsy of the chest, inflammation of the bronchia and pleura, show a small increase of deaths over the previous year, whereas, the deaths from consumption of the lungs, and inflammation of the lungs, have declined.

Table III. contains a statistical enumeration of the deaths from consumption of the lungs, amounting to 1,505. It furnishes also the periods of the year, and the time of life, when the disease has proved most fatal, together with a designation of the sexes, and the monthly and quarterly mortality.

The deaths from consumption this year are 9 per cent. less than they were in 1858. Another change will be discovered, in regard to the proportion of sexes; as, contrary to the usual rate, the excess in this instance is on the side of males, equal to 7.57 per cent. above those in females.

This disease is productive of a large amount of our annual mortality. The fatal cases are equal to 61 per cent. of all the deaths from the diseases of the lungs and air-passages; and of the annual aggregate mortality, they form nearly 19 per cent. To the population, they are as 1 to every 415.29, or 2.40 in every 1,000.

The heaviest mortality was between the ages of 20 and 30, while the month of November records the greatest number of deaths, viz., 156. The fewest deaths, 95, occurred in September. The first quarter of the year contributed the largest number of deaths.

Table IV. records the deaths from diseases appertaining to the nervous system, amounting to 1,843, or 20.28 per cent. of the entire mortality.

The highest mortality from any one disease in this table is claimed by convulsions, which amounts to 520, or 28.22 per cent. of all the deaths in this group.

The diseases coming under this head not being influenced by the seasons to the same extent as many of those are in other classes, the uniformity in the number of deaths occurring from month to month, and even from year to year, is but little affected, unless it may be in the instance of coup de soleil, which is an exception. An examination of the record of deaths for several years back, will present only a slight disparity in the numbers for the different quarters of each year.

Table V. The diseases belonging to this class, the organs of nutrition, return a mortality of only 1,670, or 18.38 per cent. of the annual deaths. The falling off of the deaths in this group from those of last year, is equal to about 4 per cent. The disproportion is caused principally by the less number of deaths from cholera infantum, dysentery, and marasmus. These three diseases alone make a difference of 462 deaths in the table, when compared with those of the previous year. The diminished number of deaths from cholera infantum, which has always rated next highest to consumption in these tables, is strikingly perceptible, to which circumstance I have already alluded.

The diseases noticed in this table are chiefly those which happen during the warm seasons of the year; hence it will be found that the 2d and 3d quarters furnish the largest proportion of deaths, equal to 148.62 per cent. over the 1st and 4th quarters.

The large increase of deaths from inflammation of the liver, is worthy of notice. The average of deaths from this disease for the three previous years was 31⅓; this year, 1859, they were 92, nearly equal to the number for the three former years. I am not prepared to assign any cause for this increase.

Table VI. Those who examine this table of deaths from diseases of the urino-genital organs, will be struck with the comparative increase over those of the previous year. The number in 1858 was 63. In 1859, they are set down at 143, a difference of eighty. A little explanation will place this disparity in its true light. In 1858, all the deaths from cancer of the different organs were placed in the health office reports under one general head, cancer; hence the deaths from cancer of the uterus were not found in this table. This year the deaths from cancer having been distinguished according to their location, increases this table 52. The only real increase, therefore, over the deaths of 1858, is to be found in puerperal fever and disease of the kidneys, amounting to 36.

There has been a perceptible increase of deaths from puerperal fever. They now number 51, or fifteen over those for 1858. The highest number for any period occurred in the first quarter, the coldest season of the year. The proportion of deaths in this table to the entire mortality, was 1.75 per cent.

Table VII. Like the mortality from fevers during 1858, so this table, the present year, exemplifies the healthy condition of our city, when placed in contrast with those of former years, and with the deaths from fevers, in other large cities. The proportion, to the mortality from all causes, exclusive of stillborn, is 1 in every 13, or 7.16 per cent. It rates about alike with that of the former year. The slight increase of percentage is owing to decrease in the general mortality for the year.

The deaths from scarlet fever in this table give nearly the like number as in 1858, viz. 232. The epidemic influence still lingers with us, and according to the returns for the last quarter, may be on the increase.

I have omitted the table for measles, smallpox, and varioloid. The deaths from measles amounted to 51. Of these, 40 occurred in the two first quarters of the year, ten in the third, and only one in the fourth quarter. By this, it would appear that our city at this time is almost free from measles.

Of deaths from smallpox, but two are found during the entire year, and none from varioloid.

I cannot refrain from expressing the conviction, judging from the evidence afforded by the statistics of former years, that ere long our city may suffer from an epidemic influence, which shall inflict upon us that most loathsome of all diseases—smallpox. Adopting this opinion, I regret to add that we are by no means in a proper state of protection, so far as relates to prophylactic measures, to contend with this dangerous enemy to life, from the fact that, for several years, public vaccination has been fearfully neglected, through the supineness of our public authorities, in declining to appoint collectors of cases for vaccination, as in former years. As a consequence of this omission, only 195 persons were vaccinated under this ordinance during the year. No censure whatever can be laid upon the medical gentlemen appointed by Councils as vaccine physicians. Their duty is to vaccinate, gratuitously, all persons who call upon them at their offices, which duty they have faithfully performed. The imperfection exists in the want of collectors of cases, who shall make house to house visits in the several wards, and gather the names and residences of the hundreds of children, and even adults, who are unprotected by vaccination, and who, in the event of an epidemic of smallpox, will fall victims to its ravages. For the past six years, but few of those for whom this humane ordinance is intended, have undergone the process of protection, when compared with the many who received its benefit in previous years, under the ordinance recognizing collectors of vaccine cases. On more than one occasion, the Board of Health has called the attention of Councils to the importance of an improved system of vaccination, but without any favourable response. The medical profession has spoken its mind freely on this subject, and in the event of an epidemic of smallpox visiting our city in its present unprotected state—so far as public vaccination is concerned—let the censure fall where it properly belongs.

Table VIII. furnishes an analytical view of the mortality for the year, arranged in numerical order. The number of stillborn, with the sexes, for each month. The monthly deaths, with the sexes, at fifteen different periods of life. The number of boys and girls, or those under 20, that have died, are all enumerated. A calculation of percentages of deaths for each month to the whole number of deaths is given, together with the percentages for the several designated periods of life. This table will be found useful in the preparation of comparative tables.

Births.—For several years previous to the organization of the present board of health, no systematic effort had been made to secure a record of the births in our city. Owing to this delinquency, the reports sent to the health office were so limited in number, as to render their publication useless. This circumstance is to be regretted, as it leaves a blank in the birth statistics of our city, which can never be filled otherwise than by inference.

The following table gives the number of births in our city for 1859, as far as they have been returned at the health office.

1859.	Males.	Females.	Total.
January	684	633	1317
February	597	577	1174
March	621	563	1184
April	613	511	1124
May	632	575	1207
June	551	575	1126
July	635	589	1224
August	644	605	1249
September	686	580	1266
October	655	623	1278
November	639	622	1261
December	712	710	1422
Total	7669	7163	14,832

An examination of the above figures, shows an aggregate of 14,832 births. A majority of these are males, amounting to 7669 or 51.70 per cent. of the whole number, while the females numbered 7163 or 48.29 per cent., showing a preponderance of male births for the year, equivalent to 3.41 per cent. This excess of boy births, in the proportion of the sexes, according to the experience of Villermè, Emerson, and other statisticians, indicates a favourable condition of the health, prosperity and vigor of a community. Hence it furnishes additional evidence of the good health of our city for the year.

The births are stated in this table for each month of the year. December appears to have been the most fruitful in births, yielding 1422; April the least so, furnishing only 1124; June gave only 1126. These returns demonstrate that March was the most prolific in conceptions, while August exhibited the least fecundity.

The ratio of births to population, according to these returns, gives 1 to every 42.13. In the city of Boston for 1858 it was, 1 to every 30.35 In the city of Providence for the same year, 1 to every 29.15.

From these comparative estimates, the inference is drawn, that our returns of births are not sufficiently accurate to warrant any reliable statement, as to the proportion of births to population. For no reason can be adduced why the producing part of our community should not be equal to that of England, where, according to the reports of the Registrar-General, there is 1 to every 31 of the population. Moreover, as it is undoubtedly true, that large cities furnish a still greater proportion than States or countries at large; therefore, based upon this evidence, our birth returns should amount to about 20,000.

When compared with the deaths, the returns of births present an excess of 4913; a gain to the population, equal to 50 per cent. of the mortality.

BOYLSTON PRIZE ESSAY.

ART. XV.—*Tubercle—its Pathology, and especially its Relation to Inflammation.* By C. ELLIS, M. D., of Boston.

IN the attempt to elucidate the above question, it is not necessary that an exposition should be made of all that has been written upon tubercle. It is only within the last few years that the subject has been properly discussed, and that new and more accurate methods of investigation have been brought to bear upon it. We wish to know, therefore, what ideas prevail with regard to it *now*—the facts of to-day, which necessarily include the real facts of the past.

As the basis for the inquiry into which we are about to enter, we shall endeavour to give as concise a description as possible of tubercle, as it is now regarded by the best observers, such as Virchow, Rokitansky, Lebert, and Paget, limiting ourselves to facts. We shall afterwards consider the real meaning and bearing of these facts, judging them by cases drawn from our own experience and that of others.

The very object of the present essay being to give if possible an idea of the real nature of tubercle, we will not attempt to frame any comprehensive definition at the commencement, but hope to show clearly when our work is done, that much of that which is called tubercle is nothing of the kind, and, perhaps, to show approximately what the peculiar product is.

In the usual descriptions of tubercle its properties are so intermingled, and confounded with accidental appearances that but few gain any precise idea of them. This confusion seems entirely unnecessary, as, like other visible objects, it has some features which are constant—which belong to it, as a tubercle, and these it should be the object of the writer to show, keeping carefully out of sight modifications, which are the result of accident, and which may be alluded to in their proper place. Our first labour must, therefore, be the separation of the materials, which we are to use, in order that each part may find its proper place. In rearranging them, the most natural method to pursue appears to be that of describing, first, the most obvious properties, such as form, colour, consistence; then those which require a more accurate and profound investigation.

Form or Configuration.—We shall first speak of the form, that is, the configuration of tubercle. Now tubercle, unlike a crystal, a plant, or an animal, has no definite form. It is always an infiltration. Its configuration is often the result of accident, and, yet, variations attributable to this have been seized upon and made the basis of subdivisions, which have only added to the previously existing obscurity. To speak practically, however, we meet with it in two forms and two only; one regular, spheroidal, as by growth from a centre; the other irregular, as if the result of infiltration among the tissues. Under these two heads may be classed every variety mentioned.

The nodules in the first form vary in size, from those which are just perceptible to those several inches in diameter. To the smaller, the term tubercle is more applicable, or, at least, more often applied than to the latter, which would probably be spoken of as tubercular collections or tubercular masses; still they have a certain regularity of outline.

In the second form, the product is met with as an infiltration, extending irregularly among the tissues, and often occupying large portions of organs. In connection with these masses will be frequently seen minute points of the same material—a kind of tubercular dust—by the aggregation of which the larger portions appear to be formed, but, in the latter, the component particles are not distinguishable in the same manner as the small rounded bodies above described, when they are collected together in groups. This infiltrated variety is not unfrequently primitive, according to Rokitansky, but, still more frequently, isolated tubercles pre-exist.

Colour.—Its colour is gray or yellow. When gray, it is semi-transparent, pearly, at times almost vitreous in appearance; when yellow, opaque. The shade of yellow is important. According to Lebert, it is never of an orange or ochre colour.

The gray and yellow colours are met with in both forms of tubercle, and sometimes the two are mingled, a gray granulation being perhaps yellow in the centre, or a large mass partly of one, partly of the other hue.

Consistence.—The consistence varies according to the stage in which the product is examined. We sometimes find near the firmer portions, a viscous synovia-like fluid, resembling in color the gray tubercle, of which, according to some, it is the earlier stage; Lebert, however, regards it as an exudation from which connective tissue is formed.

Gray tubercle is usually quite firm, elastic, difficult to subdivide with the dissecting needles, and when divided it breaks into fragments. Sometimes, however, it is soft and may be crushed into a continuous layer.

The yellow variety is softer, caseous, more brittle, and readily crushed.

Vascularity.—The question of vascularity has been so much discussed that it must be noticed here, although it is introducing among positive characters, what has no existence. Without referring to the statements made *pro* and *con*, it is sufficient to say that, where bloodvessels are found within a tubercular mass, they belong to the tissue in which it lies, and not to the tubercle, which is from its very nature non-vascular.

Microscopic Characters.—In endeavouring to ascertain whether there be in tubercular matter anything which the microscope can detect, we should if possible choose a part of the body, of which the natural elements are so simple as to furnish nothing which can simulate those of the new formation. Though all writers do not refer to this point there is sufficient correspondence between their observations to lead us to believe that proper precautions have been taken. Certain accidental products are, however, common to tubercle everywhere, and these we shall mention in their proper place.

The elements detected by the microscope are supposed to be common to both the gray and yellow varieties, and we will for the present accept this view, reserving for the future a more thorough examination of the question.

We must first make a distinction between the corpuscular elements and the substance which unites them.

The former may be subdivided into those belonging to the product when in a perfect state, and others probably resulting from some degenerative process or other change. Here, too, we are following the generally received opinion, with the intention of modifying it hereafter in conformity with our own views.

In the class first mentioned we have—

1. Minute molecules or granules, scattered in abundance throughout the mass, particularly in the yellow variety. All of these are not similarly affected by chemical reagents, the greater part remaining unchanged after the addition of the acids, alkalies, or ether. These have been regarded as modified protein compounds. We have, mingled with these, however, many fat globules.
2. Nuclei from 0.004 to 0.009 millimetres in diameter, either roundish or oval, usually containing in their interior some granules and a nucleolus.
3. Nuclei of various shapes without distinct nucleoli, and more or less defective, as is shown by their wrinkled irregular outlines.
4. Nucleated cells, according to Paget, misshapen, withered, and irregular, or, as Wedl states, sometimes elongated, and constituting merely the external layer of the new formation.
5. Compound cells of large size, and containing a number of nuclei.
6. The so-called tubercle corpuscles. Although these have a somewhat irregular angular outline, their form generally approaches the round or oval. A high power is necessary for their examination, as they are only from 0.005 mm. to 0.0075 mm. in diameter. A more or less transparent substance, and molecular granules fill the interior.

The above are the elements most commonly described in connection with tubercle. Although they may be accidental, it was thought advisable to separate them from those which are undoubtedly so, and which are—

1. Fragments of the various tissues involved in the disease.
2. Various products of inflammation, perhaps undergoing degeneration, such as pus-corpuscles, granular cells, or masses, etc.
3. Fat; sometimes in the form of vesicles, sometimes as granules of elaine or stearine.
4. Cholesterine, which, according to Lebert, is found only in cretaceous tubercle.
5. Calcareous granules found in the cretaceous tubercle, composed of the phosphate and carbonate of lime. These sometimes form shapeless masses.
6. Prismatic crystals, which are, however, very rare.
7. Pigment, which is met with in three forms according to Lebert; in grains, as spots, and as spherical melanic globules filled with black granules. This pigment, as the same author states, has never been found in the interior of the so-called tubercle-corpuscles.
8. Concentric colloid corpuscles are mentioned by Wedl.

We must now consider the interglobular substance, which unites the elements above described. This is pretty firm and semi-transparent, but presents no filamentous appearance. It is most abundant in the gray variety, and is more or less filled with molecules in the yellow.

Chemical Characters.—When we consider the difficulty of separating the tubercular matter from the tissues in which it lies, it will easily be understood that the results of a chemical investigation cannot be very satisfactory. Nothing peculiar to, or which throws any light upon the nature of the disease has yet been discovered. It is hardly worth while, therefore, to copy analyses, which would be useless in our present inquiry, since they are always accessible to those interested in them.

Metamorphoses.—Tubercle being unorganized and non-vascular, we might suppose that though capable of exciting changes in the parts in which it lies, it would undergo none itself. This, however, is not the case; it is exposed to a variety of metamorphoses, partly owing to the influence of the living tissues, partly to physical changes within itself.

In the first place, the gray may be transformed into the yellow. Although the infiltrated variety undergoes this change, it may be best observed in the discreet granulations, in which the centre first becomes opaque. This, as we shall hereafter see, is precisely what might be expected, the deeper seated parts being the oldest.

Gray tubercles in the lungs are also subject to a peculiar change, in which they lose their lustre, become dry, hard, horny, and shrivel into shapeless masses. This indicates that the substance is no longer susceptible of change.

The yellow and mixed forms may gradually become cretaceous. This, like the previous change, is curative. A mass which is undergoing this transformation becomes more consistent although the cohesion may be less; it is whiter, gritty to the feel, and when pressed between two slips of glass resists much more than before. At a later period, it resembles plaster or lime with which a little water is mingled. Finally, a concretion of stony hardness may be formed, sometimes of considerable size, though rarely larger than a pea.

At the commencement of the change the interglobular substance presents, in addition to the ordinary molecules, mineral particles which are detected rather by their resistance to compression than by any other peculiarities. These particles gradually increase until the substance is occupied by them. In addition to the above, crystals of cholesterine are found, and the dark pigment previously described. This cretaceous change has been most frequently noticed in the lungs and bronchial glands.

Yellow tubercle may also soften. This change may commence in the centre, at the periphery, or in both places at once. In the tubercular matter itself, it is never a vital process, and may take place independently of inflammation or exudation from the surrounding tissues. Though morbid secretions may aid somewhat in the disintegration of tubercle, they are not essential to it. It is a purely physical change, dependent upon the absence of nutrition, and is therefore seen in the deeper-seated or oldest parts of the distinct nodules, even where these are of considerable size. At an early period, the softened portion looks more crumbling than the remainder, and is very easily separated from the firmer part, leaving a little cavity. At a later period it becomes liquid, like pus, with flakes or grumous masses floating in it. These last may be undissolved portions of tubercular matter. But this liquid is not pus, for, into this, tubercle is never transformed. When there is an admixture of pus globules, they must be derived from the adjacent tissues, for these alone possess the vascularity absolutely essential for the formation of a purulent fluid.

Although the friable grumous condition may precede liquefaction, it may exist a long time without the latter taking place, and be followed by the cretaceous change. Under the microscope, a mass which is softening presents different appearances according to the stage at which it is examined. At one period the so-called tubercle corpuscles will be distinctly seen, but they afterwards disappear, and we have nothing but an abundance of molecules, with particles of oily and calcareous matter.

The product thus formed is usually discharged, the surrounding tissues having ulcerated; but it may be retained. In this case the fluid parts are gradually absorbed, while the fatty and calcareous matters increase until it is converted into a dry, friable, mortar-like or hard concretion.

Changes in the adjacent Tissues.—Having considered the changes which take place in the tubercle itself, we will glance at those which affect the tissues in which it lies. Its presence may cause the destruction of the adjacent and included parts, or give rise to the formation of new tissue. The inflammation excited may be followed by the expulsion of the tubercular mass, either before softening has taken place or after. This may be a curative process, but also one attended by danger, and, though all the tubercular matter be expelled, there is a constant tendency to the formation of more in the walls of cavities, and in the basis and borders of ulcers. In the same parts new cellular tissue may also be formed, and this may finally become tubercular. The melanotic condition so often seen probably has its origin in the transformation of hæmatin, and is perhaps preceded by the obliteration of vessels, whose contents afterwards become changed.

Parts affected.—Not only almost every organ and tissue may be the seat of tubercular disease, but new formations, such as cellular tissue in cicatrices, and in the borders and bases of ulcers. Though showing a decided predilection for some organs more than others, its tendency is to invade one part after another, or several simultaneously. This disposition to generalization is particularly marked in infancy.

Notwithstanding the various opinions advanced with regard to the exact seat of tubercle, it seems quite evident that it is deposited particularly in the cellular tissue of organs, among the elements of which they are composed, as between the bronchi and vessels of the lungs, between the nerve-tubes, or between the tubuli or other elements of the secreting organs. It is also seen on the surface of membranes, as in the genito-urinary organs, the bronchial vesicles or minute bronchi.

Frequency in different Organs.—It is impossible to settle summarily the question of frequency in different organs. No single table will suffice. We may, it is true, state absolutely that some organs are particularly exposed to the attacks of this disease, while others are almost exempt. But, with regard to the former, the liability varies at different periods of life and according to the primary or secondary character of the affection. With regard to the latter we may be more absolute, as there are some parts which are scarcely ever affected, such are the salivary glands, the ovaries, the walls of the bloodvessels, the œsophagus and vagina.

The statements of different authors, concerning the relative frequency in organs, do not agree, and being based upon facts, are of course irreconcilable. We shall therefore be justified in adopting the opinion of one like Rokitansky, who has had the largest experience and the best opportunity for judging. According to him, the scale is somewhat as follows: the lungs, the intestinal canal, the lymphatic glands (particularly the jugular, the bronchial and abdominal), the larynx, the serous membranes, pia mater, brain, spleen, kidneys, liver, bones, and periosteum, uterus and tubes, testicles with the prostate and vesiculæ seminales, spinal cord.

In children, on the contrary, the lymphatic glandular system holds the first place with the spleen, afterwards the lungs with the bronchial mucous membrane, then the brain, serous membranes, etc.

In estimating its frequency as a primary or secondary lesion, we arrive at still different results. Though the lungs and lymphatic glands still hold the same position, the scale in other respects may be entirely changed. Thus, the urinary organs, the female sexual mucous membrane, the bones, the testicles, the prostate and vesiculæ seminales, which stood at the bottom of the list, follow closely the organs first mentioned; while the intestines, larynx, trachea, serous membranes, spleen, and liver, are almost never the primitive seat of the disease.

In addition to the above peculiarities, certain organs are likely to be affected simultaneously, or nearly so.

The disease not only shows a disposition to invade certain organs, but certain parts of those organs, as the apices of the lungs, that portion of the pia mater which lies at the base of the brain, the gray substance of the brain itself, the spongy bones and spongy portions of the long bones, the lower part of the small intestine, the fundus of the uterus, &c. But, in the midst of this almost universality of invasion and destruction we see certain limits to its power. From the larynx, it almost never extends to the pharynx, or from the fundus of the uterus, through the internal orifice.

Incompatible Diseases.—Fortunately, also, there are conditions of the body, with which it seems to be nearly or quite incompatible. These, according to Rokitansky, are—

1. Cancer, which is extremely rare in connection with tubercle.
2. Typhus. (By this is probably meant our typhoid.) This is decidedly exceptional in tubercular individuals.
3. Rickets is not often seen in connection with it, and the combination of the two is especially rare, when deformity has resulted from the disease of the bones, and the chest has become narrow.
4. Derangements arising from mechanical obstruction of the circulation in the heart and lungs. Under this head we may class the following conditions:—

a. Obstructions at the orifices of the heart and consecutive enlargement of the latter.

b. Congenital malformations of the heart and the arterial trunks, such as absence, narrowness, persistence of the thoracic duct.

c. Many acquired anomalies of the arterial trunks, resembling congenital arrests of development, such as those resulting from compression; also dilatations, as aneurism, particularly when in the neighbourhood of the heart.

d. Diminution of the capacity of the thoracic cavity, caused either by a great degree of deviation of the vertebral column, by advanced pregnancy, or by large ovarian cysts.

e. The original small size of the pleural sac and lungs.

f. An enlarged thyroid gland, chronic catarrh, dilatation of the bronchi, or pulmonary emphysema.

There are, of course, other facts which might be alluded to in the general history of tubercle, but it is believed that the above are the most important in connection with the inquiry we are about to make, and more perhaps than we shall use.

Assuming, then, that they represent fairly the present opinion concerning the anatomical characters of the new formation, we have yet to decide upon their relation to, and the real nature of the latter. For this purpose we must make use of the clinical history of cases as well as of the unaided eye, the microscope and other means, which can throw light upon the physical characters of the affection.

Our inquiry should be directed to three points, within which appear to be comprised the questions which may arise.

1. Is tubercle a "specific exudation poured out under the influence of a special, general pathological state?"
2. Is it a degraded condition of the nutritive material from which the textures are formed, differing from that furnished under ordinary circumstances not in kind but in degree of vitality or capacity for organization?
3. Is it the result of the metamorphosis of elements normal or pathological?

Within the last few years we have met with a variety of cases which seem to throw some light upon the above points. In the greater part of them the statements are mostly confined to the anatomical and microscopical characters, either because the nature of the disease was undoubted and too well understood to render it necessary to give more than its name, or because the clinical history did not appear to have any bearing upon the present investigation.

It will also be noticed that in the microscopic examinations no allusion is made to any of the elements described, except the so-called tubercle-corpuscle. This is the only one about which there is any dispute. The others, certainly, are not peculiar to tubercle, although so frequently found in it.

Cases.—In a large number of cases in which both the gray and yellow varieties were examined microscopically, the so-called tubercle-corpuscle was found. There can, therefore, be no doubt about the existence of this—that it is almost universal in formations which are considered tubercular. But we must look still farther and endeavour to ascertain whether it be not also found elsewhere, and under what circumstances it is wanting.

CASE 1. *Infiltrated tubercle: absence of any peculiar elements.*—In Jan., 1857, a child was examined, who died with well marked tubercular formations in various organs. In the lungs were cavities, yellow caseous matter, and a large amount of grayish-white material. The latter, examined with the microscope, was found to contain *nothing but epithelium cells.* It seemed to be characterized rather by the absence of peculiar elements than by anything else.

CASE 2. *Miliary granulations containing hardly a trace of the peculiar corpuscles.*—In 1852 a case was examined, in which very firm miliary granulations were found in the lungs. One of these proved to be so firm that it was with difficulty subdivided by the dissecting needles. Under the microscope, much cellular tissue was noticed and many epithelium cells; but also a very few suspicious looking bodies, "which resembled in some respects the tubercle-corpuscles."

CASE 3. *Gray granulations containing altered epithelium and tubercle-corpuscles.*—In a person who died of acute phthisis, the lungs were found crowded with gray granulations, softer than those above mentioned. They contained, besides "tubercle-corpuscles," *large cells filled with fat globules and granular matter. These were probably epithelium cells* *which had degenerated.* (Fig. 1.) In the apparently healthy intervening portions of lung, the same elements were seen, and also cells in which the nucleus was still visible. The pulmonary tissue was also infiltrated with fat. (Fig. 2.)

Fig. 1.

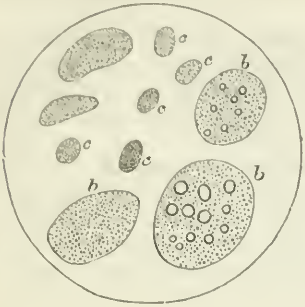


Fig. 2.

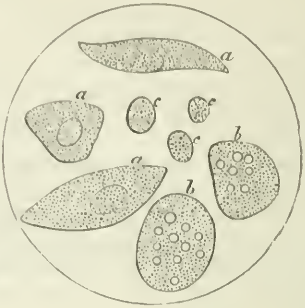


Fig. 3.

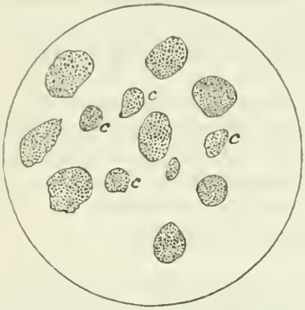
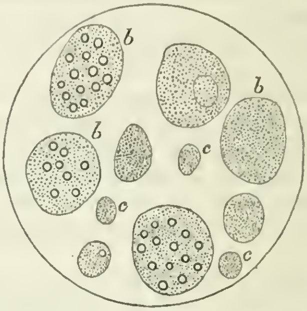


Fig. 4.



a. Epithelium. *b.* Degenerated epithelium. *c.* "Tubercle corpuscle."

The above appearances were compared with those presented by yellow caseous material taken from a patient who died of chronic tubercular disease. In this, granular corpuscles of various sizes were seen, but none as large as those spoken of above as epithelium. Many were of the size, and resembled in every respect the "tubercle-corpuscle." (Fig. 3.) In the intervening portion of lung, however, the same large degenerated cells were found as in the other specimens. (Fig. 4.)

CASE 4. *Degeneration of epithelium in connection with tubercular disease of the lungs.*—In a case examined in Dec. 1857, the lungs were found crowded with tubercles. Some parts in which no decided deposit had taken place, had a yellowish tinge, and, under the microscope were seen to contain many large cells filled with minute globules; evidently epithelium undergoing fatty degeneration.

CASE 5. *Same change as in the above.*—In the lungs of a person who died in April, 1858, there was found very extensive tubercular disease, partly in the infiltrated form. On examining the more dense red portions between the deposits and the parts containing the fine tubercular dust, there were seen many large corpuscles filled with minute globules; others of the same size containing nuclei partially obscured by the contents; and many much smaller, down to the so-called tubercle-corpuscle.

Case 6. *Same change. Resemblance of the nuclei of the epithelium to the "tubercle-corpuscles."*—In Oct. 1858 a woman died suddenly of pulmonary hemorrhage. In the lungs was a small amount of yellow tubercle and some gray, the latter in the form of an infiltration. In the last were many perfect epithelium cells and some tubercle-corpuscles, but these resembled the nuclei of the first. In some parts which had a yellowish tinge the epithelium cells had become quite granular or had disappeared, while the tubercle-corpuscles were much more abundant.

Case 7. *Pneumonia: fatty degeneration of the epithelium.*—A man died after being sick a fortnight with the usual symptoms of pneumonia. Nearly the whole of the right lung, from the apex downward, was hepatized, and much of it in the third stage. On examining portions which were still elastic, though probably somewhat diseased, the epithelium cells, or others of the same size, were found opaque, granular, and partially or entirely filled with fat globules. There were also many small opaque corpuscles. In parts which had reached the third stage, there were many pus globules, with here and there a large cell like those above described.

Case 8. *"Yellow infiltrated tubercle." Fatty degeneration of the epithelium. "Tubercle-corpuscles" resembling the nuclei of the epithelium.*—In Sept. 1858 a man, after exposure to cold, was attacked with cough, dyspnœa, and other thoracic symptoms of a subacute character. For some time he was able to keep about, and several weeks after entered the hospital. The physical signs were such as are usually found in connection with consolidation of the lung. The sputa, however, were not peculiar, and the symptoms never resembled those of ordinary acute pneumonia. He steadily failed, and died four months after the commencement of the disease. At the examination, there was found scattered throughout the left lung, from apex to base, a dull yellow material in the form of small points or large irregular masses, the last evidently resulting from the aggregation of the first. The lower lobe was for the most part occupied by this adventitious product. In the upper lobe was a cavity filled with dirty pus. The other lung was similarly affected, but less extensively. Near the confines of the disease were several reddish, firm portions of small size, resembling the pulmonary tissue in a state of red hepatization. On examining the last with the microscope there were seen epithelium cells, in some of which nuclei were still visible. There were also other cells of the same size filled with minute globules or granules; and mingled with these many others of various sizes down to the "tubercle-corpuscle." The latter resembled in every respect the nuclei of the epithelium.

In the more abundant yellow material at the base of the left lung there were seen the same "tubercle-corpuscles" and the same large cells filled with minute globules, but very little, if any, healthy epithelium. The bronchial glands contained a little caseous or cretaceous matter. In the lower part of the small intestine were a few small ulcers and a little yellow material. The mesenteric glands were enlarged, and contained a yellow tubercular deposit.

Case 9. *"Yellow infiltrated tubercle." Fatty degeneration of the epithelium.*—A young man, 17 years of age, after wetting his feet, was attacked with cough and other thoracic symptoms, not sufficiently severe, at first, to confine him to his bed. He raised a little blood several times, and, his health declining, finally entered the hospital, after which the sputa were several times reported as rusty. The symptoms, however, were more those of phthisis than of pneumonia, and the physical signs did not point particularly to the latter. He died after an illness of about ten weeks.

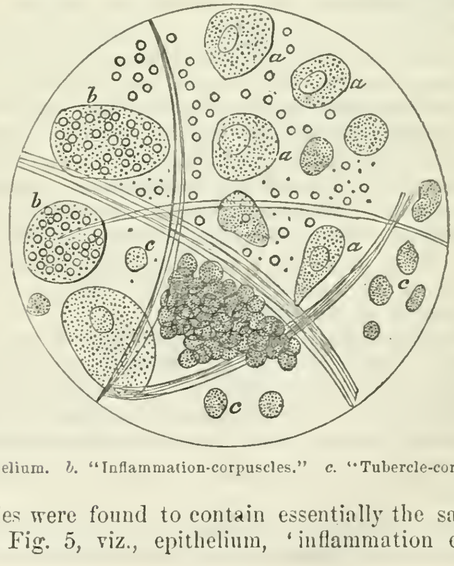
Much of the right lung was occupied by large yellowish-white masses, closely resembling infiltrated tubercle. The other organs were not examined, but there was no reason to suspect disease in any of them. The microscopic characters were, on the whole, the same as those described in previous cases, viz., epithelium more or less degenerated, and corpuscles of various sizes, down to the tubercle-corpuscle.

In connection with the last two cases, it may be well to allude to those published by Dr. Bowditch in the *American Medical Monthly* for July, 1855, entitled—

"*Cases of anomalous development of tubercle, commencing at the base of the lung and gradually extending upwards; with the physical signs of pneumonia.*"—In several which were examined after death the appearances were such as have always been regarded as belonging to tubercle. In one in which the microscope was used the results were as follows:—

"To the naked eye the tubercular deposit was present in three distinct forms: 1st, as isolated, round, yellowish-white granulations, about a line in diameter, and separated from each other by pale red pulmonary substance; 2d, as a yellowish-white, almost diffluent or gelatinous matter, a small quantity of which only was seen; 3d, as a yellowish granular substance, containing but little moisture. This last form was most abundant, occupying, in large irregular masses, the pulmonary tissue. On microscopic examination, the first two varieties were found to contain essentially the same elements as represented in Fig. 5, viz., epithelium, 'inflammation corpuscles,' and

Fig. 5.

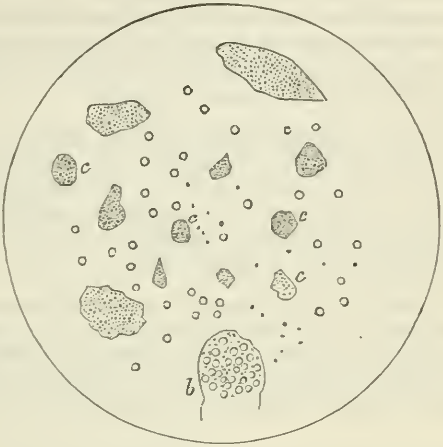


a. Epithelium. *b.* "Inflammation-corpuscles." *c.* "Tubercle-corpuscles."

others of various sizes (the latter unaffected by acetic acid), forming a regular series down to the so-called tubercle-corpuscle. In addition to the well-marked epithelium cell, others were seen in which the nucleus was almost obscured by the minute globules, which entirely filled, and gave the peculiar character to, the 'inflammation corpuscle.'

"The appearances in the third variety are represented in Fig. 6. Here the larger corpuscles had almost entirely disappeared, a few fragments only remaining, while the number of so-called tubercle-corpuscles had much increased. Numerous minute globules and granules were floating about in all the specimens."

Fig. 6.



b. "Inflammation-corpuscles." *c.* "Tubercle-corpuscles."

Case 10. *Cancer, containing well-marked "tubercle-corpuscles."*—In a breast removed at the hospital by Dr. Cabot in March, 1859, the appearances were those of ordinary scirrhus, and there were none of the usual signs of degeneration. It was found to be composed of fibroid tissue and corpuscles of various sizes, none very large, and many so small and granular as to resemble precisely, when examined with a high power, the so-called tubercle-corpuscle.

Case 11. *Cancer presenting the usual appearances of tubercle, attributable to the fatty degeneration of the cells.*—It is so common to find yellow "phymatoid" material in growths unquestionably cancerous, that we do not consider it necessary to cite any single case, but make the general statement that in a large number of instances we have found the change owing to the fatty degeneration of the cells, which may still retain the form of the more healthy ones among which they lie.

Case 12. *Caries of the spine. Cavities in the bone filled with a yellow caseous substance, which extended downwards along the spine and psoas muscle to the thigh.*—In this case the bodies of the three last lumbar vertebræ and the upper half of the sacrum were extensively carious. Deep cavities in the former were filled with a yellow, soft caseous substance like soft tubercle or inspissated pus. Those portions which still retained their usual form were infiltrated with a thick red fluid. A caseous material like that described above filled a cavity between the diseased bones and tissues around, and extended downwards in the substance of each psoas muscle, on the left side as far as Poupart's ligament, and on the right, apparently as low as the thigh. The substance within the muscle was considerably drier than that in the neighbourhood of the bone.

Taking into consideration the disease of the bone and the course pursued by the caseous material, there can be no doubt that the latter was merely inspissated pus, and yet it is precisely like what Nelaton describes as tubercle in connection with tubercular disease of bones.

Case 13. *A formation apparently tubercular in the diaphragm. Nothing peculiar noticed with the microscope.*—In a patient who died of tubercular disease of various organs, there was also seen beneath the serous membrane covering the diaphragm a yellow deposit resembling those found elsewhere. Unlike them, however, it contained no peculiar corpuscles, but merely irregular masses and small fragments.

Case 14. *A formation apparently tubercular in a supra-renal capsule. Nothing peculiar noticed with the microscope.*—In the supra-renal capsules of a patient who died without manifesting any decided symptoms except debility, yellow deposits were found resembling very closely yellow tubercle, but, on microscopic examination, nothing was seen but an amorphous mass.

Case 15. *Disease of the kidney simulating tubercle.*—A sacculated kidney, in which the sacculi were evidently dilated calices, was filled with a soft substance like thin mortar, which might be mistaken for tubercle. This, on microscopic examination, proved to be composed of minute globules and irregular granular corpuscles, some like those so commonly found in tubercle, but many much larger. The material was undoubtedly inspissated pus, as there was ulceration of the bladder, and the patient had had urinary symptoms for four or five years.

Case 16. *Fibroid and fatty degeneration of the placenta, resembling yellow tubercle.*—A case of this kind is reported in the *Transactions* of the Boston Society for Medical Improvement (vol. ii. p. 292). In the substance of the placenta were a number of firm yellowish-white masses, some of which closely resembled tubercle. These were found to be non-vascular, and the villosities, where seen, had a more or less fibroid appearance, and contained granular matter or minute fat globules. This is not an uncommon appearance, and has been described as "tubercular degeneration."

With these cases before us, let us see if we can draw any conclusion concerning the anatomical character of tubercle, or the relation of the latter to other morbid processes.

Examining, in the first place, the appearances which the naked eye can appreciate, can we trust to them as evidence of the nature of the product? Let us first take into consideration the yellow variety, as this is the most common and the one about which there probably prevails the largest amount of error.

We have seen this yellow material mingled with the semi-transparent, also in cases which, judged clinically or anatomically, might leave us in doubt about their pneumonic or tubercular character; in cancer (Case 11); in caries of the spine (Case 12); in the supra-renal capsule (Case 14); in the pelvis of the kidney (Case 15); and in the placenta (Case 16). As far as the unaided eye can teach us, this peculiar appearance belongs to a great variety of products.

On pushing our inquiry still farther with the aid of the microscope, we find that in the lungs the epithelium becomes fatty and is gradually destroyed, that the same change takes place in the cells of cancer and in the villous structure of the placenta; that in the spine and kidney the products of inflammation have evidently undergone a change; that in the supra-renal capsule there is nothing which would indicate the original character of the disease. With nearly the same external characters, these formations present very different appearances when examined with the microscope, *but they have one property in common; they show the most undoubted signs of degeneration.*

But this does not settle the question. Do they not contain, in addition, some elements which will enable us to distinguish one from the other? Now the only one which has been considered at all peculiar to tubercle is the small granular corpuscle. As we have seen, that exists in a large number of cases, but even in those, about the nature of which there could hardly be a dispute, it is found in such a connection that we are led to believe that it is only a shrivelled cell or free nucleus. But its existence in cancer (Case 11), in products evidently inflammatory, etc., furnishes us with still stronger evidence of its non-specific character.

We must, therefore, conclude that this material is simply the result of degeneration, and not necessarily indicative of any special disease.

But the conclusion implies that something existed which could degenerate. Can we not still then find a product, which we may call tubercle, possessing this tendency to decay in common with other new formations. Now, if there be anything anterior to the yellow variety, it is the gray, and to this we necessarily turn.

We have seen that it may be converted into the yellow (in other words, may degenerate), and therefore have reason to believe that some of the elements (such as tubercle corpuscles) found in it belong to the latter (yellow), and they appear to increase as the colour changes and deepens (Cases 1, 2, and 3). In Case 1 the infiltrated gelatinous material contained nothing which could be considered at all characteristic, and the same substance in Case 6 was almost as free from peculiar elements, which were also almost entirely wanting in Case 2.

May we not, therefore, conclude that gray tubercle, at an early period, possesses no anatomical element, which will enable us to distinguish it from other morbid products?

Must wè, therefore, deny the existence of such a new formation as tubercle? Not at all. We only deny that it has any special structure.

The peculiarity of the product is *its tendency*, of which we have numerous instances every day. This we cannot understand any more than we can the property of the syphilitic virus, which produces such a variety of changes in the human body. Yet no one doubts its specific power. (This is used merely as an illustration.)

We are certainly left with rather a vague principle with which to work out the great question, the decision of which is the chief object of the essay, and it appears all the more difficult to solve, when we consider that inflammation itself is a very vague and but partially understood process.

Still, accepting the term in its usual sense, we may again refer to our cases.

In No. 7, which was one of genuine pneumonia, the degeneration of the epithelium was quite as marked as in any of those which were decidedly tubercular. Pus corpuscles were also found.

In the next case, No. 8, we have a formation a little older; one which would certainly be called infiltrated tubercle. Here the same degenerated cells were found and others of various sizes, down to the "tubercle-corpuscles," which resembled the nuclei of the epithelium, increasing as before in proportion to the amount of the yellow material.

The cases reported by Dr. Bowditch are very valuable in this connection. Commencing with the physical signs of pneumonia, they pursued a subacute or chronic course until they terminated in death. The lungs, in those examined, were occupied by what were considered well-marked tubercular formations. In the one which was examined microscopically some of the changes noticed were precisely the same as those belonging to acute pneumonia, and the other appearances were such as we might expect to result from the progressive degeneration in the older product.

It appears, therefore, that the relation between the yellow material and inflammation is very intimate; that the so-called tubercle is merely the result of the degeneration of the inflammatory product and the elements of the tissues in which it lies.

Taking this view, we must conclude that the cases reported by Dr. Bowditch, and others resembling them, originated in inflammation.

But it does not follow that products like those described are always preceded by inflammation. The connection between the two, though frequent, is accidental, as we have shown by a number of cases. The great mistake in attempting to decide the question, has been that of basing the conclusions upon the degenerate formation.

The appearances noticed in a number of specimens of pneumonic lungs, examined with the microscope, seem to explain, to a certain extent, how the peculiar change of colour and consistence may take place in inflammation. On examining portions of pulmonary tissue, which appeared to be but slightly affected, and which still retained much of the red colour, we found, contrary to what was to have been expected, according to the description usually given, a decided diminution or absence of red globules, while the tissue was filled with many small granular corpuscles, closely resembling those of pus or the white blood-corpuscles. If the absence of blood continues, and the corpuscles described remain or increase, the pulmonary substance must degenerate and become dry, or soften. In the first case, we should have precisely the appearances seen in what is called yellow infiltrated tubercle, without the acute symptoms which attend the rapid formation of the pus, as in the third stage of pneumonia, when softening takes place.

We have now to discuss the question of the relation between the gray variety of tubercle and inflammation. The inquiry here must necessarily be more or less of a speculative character. We have no anatomical elements to compare, for we have declared our belief that the peculiarity of tubercle is its tendency. Now it is possible that as exudations are often the result of inflammation, their character may be so influenced by general or local causes that "tubercle" is the consequence, when it might never have been developed under ordinary circumstances. Examining the question clinically, we can come to no more positive decision. Tubercle makes its appearance sometimes with, sometimes without symptoms of inflammation, and, certainly, the recent granulations, in most cases, show no signs of an inflammatory origin: the tissue in their neighbourhood is remarkably healthy. If therefore they generally or often exist without apparent inflammation, the presence of the latter should rather be regarded as a consequence and not a cause.

Although the questions proposed at the commencement of the inquiry have been sufficiently answered, it may be well to briefly state our conclusions here.

It is not a specific exudation. It does not exist, as such, in the blood.

The yellow variety is always the result of metamorphosis—of degeneration.

It is altogether probable that it is owing to a "degraded condition of the nutritive material," which differs from that furnished under ordinary circumstances, "not in kind, but in degree of vitality or capacity for organization."

The descriptions usually given of the anatomical characters of tubercle are for the most part correct, but the real nature of the disease has been almost universally misunderstood, and the term applied to lesions of an entirely different character. All circumstances must be taken into consideration in forming an opinion about such cases.

These results are based upon observations of our own, made before we became aware of the fact that they only confirmed what was announced long ago, and quite well demonstrated too. In 1692 a dissertation was published by Zwilling, "De natura et cura phthiseos." In this he asserts that "Quicquid potest causari pulmonum inflammationem, potest etiam causari phthisin." Many men of note have since taken the same ground; but with the means which they possessed for the investigation of the subject, their views could not be so satisfactorily proved as those of the writers of the present time.

To the last, therefore, we shall appeal for the corroboration of our own statements.

The writings of Rokitansky, Paget, and Wedl, show that gray tubercle may undoubtedly be converted into yellow, though the change is sometimes so rapid, as to give rise to the idea that the formation is originally yellow. Even Lebert admits that when it takes place, the number of "tubercle corpuscles" increases. This metamorphosis, however, is like that seen in the elements of tissues and adventitious growths, which have no connection with gray tubercle. It occurs in such as are composed of nuclei and nucleated cells; in cancer, in the elements of exudations, in pus, and in the material met with in some cases of typhoid fever. Formations in the bones, cellular and adipose tissues have also been mistaken for it.

Paget states that—

> "It is common to find in medullary cancers, and, more rarely in others, portions of yellow, half dry, crumbling and cheesy substance, so like tubercle that with the naked eye, they can hardly be distinguished from it. The cancers in which they occur have been described as mixtures of cancerous and tuberculous

matters; but the microscope finds that the tuberculoid, or, as M. Lebert calls it, the phymatoid material in them, consists of cancer corpuscles, withered, with fatty and calcareous degeneration, and mingled with molecular and granular matter. By similar degeneration, material like tubercles may be found in cartilaginous, rudimental, fibro-cellular, and probably other tumours. In all these instances the microscope may usually insure a just diagnosis, and may prove that the tuberculous appearance is only due to a withering and fatty degeneration of materials, that have nothing but their degeneration in common with true tuberculous matter."

Having thus confirmed our former statement, that yellow tubercle is a degenerated product, we may now take into consideration the character of the other variety.

Virchow (*Gesammelte Abhandlungen*, p. 216) states that—

> "Young gray tubercles resemble so closely the material which forms the follicles of the cortical layer of the lymphatic glands, that they may be mistaken for it, and, certainly no greater correspondence can be found than that which exists between the follicles of the spleen and the small interparietal tubercles of the bloodvessels of the brain in tubercular arachnitis."

As no mention is made of the microscope, the above remarks probably refer to the appearances of such bodies when examined with the naked eye. If so he might also have alluded to the small fibroid granulations sometimes met with in serous membranes.

With regard to the gray gelatinous material, Reinhardt (*Annalen des Charité—Krankenhauses*. Berlin, 1850) describes it as a clear, transparent and somewhat viscous fluid, resembling in consistence a moderately concentrated solution of albumen. Under the microscope it appears completely homogeneous and transparent, but sometimes contains epithelium cells enlarged and infiltrated with fat, and also pus-corpuscles from the bronchi.

The gray granulations, he seems to think, are composed of the same material, which may form cellular tissue. This is certainly in opposition to the opinion of Rokitansky, who declares, that if adventitious growths resembling tubercle in external form and original composition show a fibrous structure, they cannot be tubercle.

The view taken by us of the nature of the latter seems to explain these differences sufficiently well. A fluid may exist, apparently homogeneous; but a part of it, however, possesses sufficient vitality to form cellular tissue; the remainder may become what is called tubercle, may present no definite structure, and show a marked tendency to degenerate.

As our conclusions with regard to gray tubercle seem to be also sustained, we will now consider the relation of the new formation to inflammation. As the views of Virchow and Reinhardt include those which have been advanced by other writers, we cannot do better than to give an abstract of them.

We will commence with a description by Reinhardt (*Annalen, etc.*) of a class of cases resembling in a most remarkable manner several reported by us.

> "We see in persons previously healthy, and not predisposed to tubercular disease, cases of inflammation of the lungs, which are usually the result of great exposure to the cold. They begin with fever, pain in the side, dyspnœa, the expectoration of bloody sputa, and the physical signs of infiltration of a large portion of a lung. In a word, they resemble those of ordinary acute lobar pneumonia, but differ from the latter in their farther course. After the subsidence of the

fever and other rational symptoms, there is no absorption, no resolution of the exudation; the affected portion of the lung remains impermeable to the air. After the disappearance of the rational symptoms in such cases, the patients may regain their health, although the exudation in the lungs is not absorbed; but more frequently, particularly where the infiltration is very extensive the health is not entirely regained, and the case finally terminates fatally. Such cases have been regarded as chronic pneumonia.

"On examination we find no traces of previous tuberculosis. Where inflammation has been excited anew a short time before death, we find the part most recently affected, voluminous, without air, not granular, and of a whitish-gray colour, perhaps bordering upon red. The infiltrated pulmonary tissue, although its elasticity is diminished, is not as friable as in ordinary pneumonia. On pressure there escapes a clear, transparent, somewhat viscid fluid, resembling in consistence a moderately concentrated solution of albumen. This, under the microscope, appears completely homogeneous and transparent, though it sometimes contains *epithelium cells enlarged and infiltrated with fat*, also pus-corpuscles from the bronchi.

"After the disease has lasted several weeks we find the external surface of the lung either smooth or depressed at certain points. The cut surface is smooth and of a gray colour, and presents a varigated appearance, owing to the existence of two distinct products; one, yellow or yellowish-white, is composed of the enlarged and fatty epithelium cells; the other, which is whitish or grayish-white, results from the increase or thickening of the interstitial tissue. The exudation pressed from the affected part appears somewhat thicker and more opaque than in the earlier stage. With the microscope we recognize the usual forms of *degenerating epithelium*, the cells being enlarged and more or less filled with fat and large protein-granules. A part have smooth outlines and distinct nuclei, while others want the latter and are shrunken. We also have irregular fragments as well as fat and protein-molecules, resulting from the destruction of the above-mentioned elements.

"At a later period the lung may shrink still more and be converted into a solid, gray, or blackish-gray mass, composed of cellular tissue and bloodvessels, and finally, when the vascularity diminishes, be transformed into a firm cicatrix-like substance."

But cases do not always terminate in this way. Spiess (*Pathologische Physiologie*, p. 423) states that "the exudation which has become hard, and more or less dry and shrunken, may undergo further changes, may be decomposed like the original inflammatory products and give rise to materials which may excite inflammation in the organs, perhaps of a slow and destructive kind."

Isolated tubercles Reinhardt thinks are formed in the same way as the more extensive infiltration; the change, however, is confined to limited portions of the lungs.

He speaks also of a form in which the affected part is the seat of gelatinous infiltration and yellow points surrounded by it, the whole having the appearance of tubercular infiltration composed of gray and yellow material. In a case which had lasted three weeks, he found in the midst of the gelatinous substance numerous small yellow points which proved to be pus, and he traced this through various changes down to the yellow tubercle. The pus became thicker and thicker, while the globules lost their regularity of outline and were less affected by reagents. At the same time the nuclei became indistinct and finally disappeared, so that the cell was transformed into a solid homogeneous mass, precisely resembling the so-called tubercle corpuscle.

The above remarks refer to chronic pneumonia, but precisely the same changes were noticed in cases which would undoubtedly be considered tubercular.

The same transformation of pus into a yellow caseous substance is seen in the liver, testicles, kidneys, &c. In the mucous membranes, tubercle corresponds with dried purulent formations; also, sometimes, with an amorphous diphtheritic exudation. Ulcers result from the separation of the parts thus affected, or they may originate in follicular abscesses, or in the usual manner. The caseous masses, the so-called free tubercle on mucous surfaces, as in the bronchi, the Fallopian tubes, the vas deferens, the vesiculæ seminales, etc., are only thickened purulent secretions of the mucous membrane.

[This last we consider altogether too sweeping a statement. Undoubtedly much and in many cases, the whole of the formations in those parts which are regarded as tubercle, result entirely from changes in the products of inflammation, but it does not follow that they may not originate in some other way.]

The connection between tubercle and inflammation is also seen in the serous membranes. At an early stage of the disease in tuberculous individuals, we find the synovial membrane crowded with blood, swollen, and infiltrated with a serous, gelatinous, or purulent exudation. Sometimes small abscesses are seen in the membrane. The cavity of the joint is filled with a sero-purulent or purulent fluid. We also meet with large masses of fibrin, containing more or less pus. When the inflammation subsides, the pus and amorphous fibrin degenerate and form yellow tubercular matter. These changes may be observed where the inflammation is owing to mechanical causes, such as wounds, fractures, etc. If such a joint be examined some time after the inflammation has subsided, we find the same appearances as in tubercular affection of the part; small granulations in the synovial membrane; the infiltration of the same with yellow caseous material, and finally deposits of a yellow tuberculoid substance in the cavity.

Virchow (*Verhandlungen der Physicalisch-Medicinischen Gesellschaft in Würzburg*, vol. i.), in speaking of what he calls tuberculous inflammation, states that—

> "We may in many cases convince ourselves that cellular tissue and tubercle make their appearance on serous membranes, in the same layer, which must be regarded as an exudation, originally consisting of coagulated fibrin. The question now arises whether the tubercle has arisen from this coagulum, that is, from the inflammatory exudation? Rokitansky has assumed that the elements of the two are originally mingled. But nothing of the kind can be demonstrated. It is much more reasonable to suppose, that while one part is transformed into cellular tissue, nuclei and cells form in the other. Then degeneration begins; after a partial fatty metamorphosis the cells decay, leaving behind a granular detritus, in which the nuclei are still, for some time, to be seen as shrunken, irregular, opaque bodies, which finally also decay, and nothing remains but an amorphous granular mass."

This still seems to confirm our own views, whatever the intention of the writer may have been. We have assumed that the marked characteristic of tubercle is its want of vitality. In the exudation above mentioned, a part is converted into cellular tissue. In the remainder, are formed feeble cells, which soon degenerate. At the commencement, the material from which both were formed appeared homogeneous, but a part only would admit of organization; the remainder made a feeble effort in the same direction and degenerated.

Reinhardt, after insisting thus strongly upon the connection between tubercle and inflammation, asks whether a general disorder, at all events a disease of the nutritious materials, does not lie at the bottom of the contemporaneous appearance in various organs of the tuberculous material? The answer is in the affirmative.

> "When we see," he says, "how children of phthisical parents, although brought up with the greatest care, and guarded from injurious external influences, are attacked by tubercular arachnitis, or at a later period, by pulmonary tuberculosis, we cannot possibly doubt the existence of a hereditary general disorder upon which the local affections depend. But, in cases of acquired tuberculosis also we have often an opportunity to see how the local affection is preceded by general derangement, loss of appetite, languor, and debility. In acute tuberculosis this general disorder assumes even the character of typhoid fever. Still farther, the influences under which tuberculosis is developed, such as bad nourishment, impure air, want of exercise, etc., are precisely those which are followed by derangement of nutrition."

Reinhardt throughout is labouring to prove that the relation between tubercular disease and inflammation is a very intimate one, and he *does* prove it. He, however, overlooks one very important point: that they are not necessarily connected. We cannot close this essay more appropriately than by giving a summary of Virchow's views (*Verhandlungen*, etc., vol. ii.), as they include most of the important points upon which we have insisted. They seem, however, to refer particularly to the yellow material.

> "1. Tuberculization, the undoubtedly local process by which is formed the product known as tubercle, does not consist in a peculiar specific exudation, *but in a peculiar transformation of the elements of tissues*, which, in 1847, I described in cancer under the name of tuberculoid metamorphosis.
>
> 2. The tuberculoid metamorphosis is coördinate with the fatty, waxy, cretaceous and atheromatous change, but not at all with inflammation, dropsy, suppuration, or the formation of cancer. [This is the exact truth; the products of the last processes must undergo fatty or other changes before they resemble tubercle.]
>
> 3. The tuberculoid metamorphosis is met with in newly-formed pathological tissues, in the old or physiological, and, lastly, in both at the same time, which is the common and characteristic occurrence. It affects the transitory elements composed of cells, or the permanent fibrous parts.
>
> 4. It consists in a cessation of the nutrient and formative processes, or a mortification, necrosis of the elements of tissues, with subsequent peripheric absorption of the fluid parts and the drying of those which are no longer nourished. This necrosis is caused by the accumulation of cell-elements, which compress the vessels of the part. [This last remark is very important in connection with the results of the microscopic examination of a number of cases of pneumonia, mentioned on page 412.]
>
> 5. These cells may be either newly formed, or result from an increased formation of the normal elements (epithelium, etc.), or may have an endogenous origin. The processes by which they arise have the characters belonging to simple hypertrophy. suppuration, cancerous or sarcomatous formations, or to the infiltrated products of typhoid fever and glanders.
>
> 6. All these processes show a marked local derangement of nutrition, especially altered exudation, and point back accordingly either to inflammation itself or analogous disorders, whether they originate in the irritation caused by local trouble, or are consecutive to constitutional causes, primary alterations of the blood, etc.
>
> 7. We have, therefore, an inflammatory, cancerous, typhoid, glanderous, and sarcomatous tuberculization, which are the same as far as the character of the

local process is concerned—that is, the metamorphosis of tissue—but differ more or less in the character of the *whole* process, whether the latter be regarded as attributable to local or general constitutional causes.

8. Tuberculosis is the entire morbid process, which includes the conditions of the local derangement of nutrition, with the changes in the exudation belonging thereto, as well as in the formation and transformation of cells. It finds its constant regular expression in tuberculization.

All tuberculization (tuberculoid metamorphosis) does not originate in tuberculosis. The latter may in its earlier stage (that of exudation, cell-formation) be present even if there be no tubercle. Tuberculosis we consider that morbid process which, when it pursues its usual course, always leads to tuberculization; while we ascribe cancer and sarcoma, which accidentally tuberculize, to an entirely different process, and should never give the name of tubercle to thickened caseous pus.

9. Inasmuch as tubercle arises from the accumulation in the tissues of a great variety of cells, which in the majority of cases are destroyed, *it is entirely without proper characteristic elements.* Of the remains of the cells, the shrivelled nuclei present the most constant external characters; we may therefore retain for these the name tubercle-corpuscle."

We are therefore justified in again asserting that the peculiarity of tubercle is a certain tendency, and any attempt to decide upon its real nature, by appealing to its anatomical characters alone, would be as futile as to predicate upon the external aspect of a number of new-born infants, their future mental, moral, or physical condition. They all contain germs of something good, bad, or indifferent, but time alone can show what their traits are to be. And, if in after years they become the pests of society, we must not trace the fallen condition of them all to original sin, but remember that they have been surrounded by various influences, and that, though reduced to the same low level, their downfall may be owing to various causes.

REVIEWS.

Art. XVI.—*A Practical Treatise on Fractures and Dislocations.* By Frank Hastings Hamilton, M. D., Professor of Surgery in the University of Buffalo; Surgeon to the Buffalo Hospital of the Sisters of Charity; Consulting Surgeon, &c. &c. Illustrated with two hundred and eighty-nine wood-cuts. Philadelphia: Blanchard & Lea, 1860. 8vo. pp. 757.

There is no subject in the whole range of the practice of surgery which is more important, and more likely to interest the practitioner, than that treated of in the excellent work before us. And, although a lamentable want of knowledge and skill in the treatment of these injuries is undoubtedly often manifested, there is no branch of practice which has more fully and frequently exercised and developed the intelligence and tact of American surgeons. The treatment of fractures and dislocations is as well understood and taught in this country, we believe, as in any other; and the advance in the study of the whole subject has, at least, kept pace with European progress in all that is essential of its theory and practice. Under this view the wonder is that a monograph like this of Professor Hamilton's has not long ago appeared.

It is not our intention by these remarks to underrate the difficulties of the task, or to depreciate the great obligation under which the signal ability and industry of the learned author of the present treatise have placed the whole profession. The fact that it is the only complete one of the kind in the English language, and that, since the times of Desault and Boyer, but one of similar extent has appeared in French, must be regarded as significant as to the magnitude of the undertaking; but this does not afford a satisfactory reason for the deficiency which has hitherto existed in the literature of our own and the mother country. Certain it is that a judicious and available digest of the invaluable experience which has been fully and repeatedly recorded in both England and America, as well as on the Continent, in admirable monographs and papers, was greatly needed.

Dr. Hamilton is fortunate in having succeeded in filling the void, so long felt, with what cannot fail to be at once accepted as a model monograph in some respects, and a work of classical authority. Before going further, let us quote a portion of the author's unpretending preface:—

> "The English language does not at this moment contain a single complete treatise on Fractures and Dislocations. The two small volumes of Desault, and the one of Boyer, issued near the close of the last century, and translated into English early in this, may perhaps properly enough have been regarded as complete treatises at the time of their publication, but they certainly cannot be so considered now. The several chapters on '*Diseases and Injuries of the Bones*,' contained in the *Leçons Orales* of Dupuytren, translated in 1846, and the *Treatise on Fractures in the Vicinity of Joints, and on Certain Forms of Accidental and Congenital Dislocations*, by Robert Smith, are invaluable monographs, but neither of them claims to be anything more than a collection of occasional and miscellaneous papers. The writings of Amesbury and of Lonsdale relate

> only to fractures. Even the justly celebrated quarto of Sir Astley Cooper is no more than what its title plainly declares it to be, *A Treatise on Dislocations and on Fractures of the Joints;* but since the announcement of the present volume, a translation of Malgaigne's great and crowning work on Fractures and Dislocations has been commenced by Dr. Packard, of Philadelphia, and the first volume has been placed in the hands of the American profession. Should the remaining volume be rendered into English, the gap in our literature will be measurably filled.
>
> "Under these circumstances I might have scarcely thought it worth while to continue my labours, already so near their completion, had it not seemed to me that Malgaigne, whose researches have been truly marvellous, had failed in some measure to give a just representation of the observations and improvements which have been made from time to time by my own countrymen.
>
> "The contributions of American surgeons to this department had to be sought chiefly in medical journals, many of which have long been discontinued, and most of which were inaccessible to the great French writer. Even to an American, the labour of exhumation from archives hitherto almost unexplored has not been small; and it is probable that many valuable papers have been overlooked; indeed it is impossible that it should be otherwise.
>
> "I am free to say, also, that I have been encouraged by a hope that my own personal experience, obtained during many years of public and private service, might be of some value to my contemporaries.
>
> "Very little space has been devoted to what is now only historical, except so far as was necessary to correct certain time-consecrated errors, or to confirm and illustrate the practice of the present day; but, by a pretty full report of characteristic examples, selected from more than one thousand cases already published by myself, by copious references to the examples recorded by others, and by a careful exclusion of whatever has not been confirmed by experience or established by dissection, I have endeavored to make this treatise useful both to the student and practical man, and a reliable exponent of the present state of our art upon those subjects of which it treats."

The first of the two grand divisions of the work is devoted, in thirty-five chapters, to fractures; and the second is occupied, in twenty-six chapters, with dislocations. The first seven chapters of the first part treat of general topics, in the following order: 1st. General Division of Fractures; 2d. General Etiology of Fractures; 3d. General Semeiology and Diagnosis; 4th. Repair of Broken Bones; 5th. General Treatment of Fractures; 6th. Delayed Union and Non-Union of Broken Bones; 7th. Bending, Partial Fractures, and Fissures of the Long Bones. The succeeding twenty-eight chapters present us with an extended and elaborate study of the special fractures of all the cartilages and bones of the body, except those of the skull. In part second, the first chapter is occupied with general considerations respecting dislocations, twenty-four chapters are devoted to special dislocations, and chapter twenty-sixth treats of congenital dislocations, these last being very fully considered in seventeen different sections.

Our readers may find themselves already conversant with a large portion of the matter which has been condensed, arranged, and amply illustrated in the first part. It will be seen that the elaborate reports which have been presented in successive years to the American Medical Association, and published in the *Transactions*, as well as other papers of value which have appeared in the *Transactions* of the New York State Medical Society, and in this and other medical journals, have been embodied in his systematic treatise. The reputation acquired by Dr. Hamilton through these various contributions, and the extensive researches which he has been long engaged in on account of his important study of deformities after fracture, have aroused an interest in the resulting volume on fractures and dislocations, which must insure a prompt success to it as a scientific publication. In fact, the position of the work and of its author is so well established, and many of his views and inferences, as expressed in different chapters, are so familiar to the profession generally, that we may be excused from dwelling on many matters which might otherwise require some notice.

It is scarcely necessary to remark that Dr. H. has brought together in a lucid, compact, and convenient form, a great deal of information which is drawn, not only from an unusually wide range of reading, but a large amount of personal experience and laboriously careful observation. The numerous published cases and authorities, which are faithfully described and cited, and the considerable number of new cases, introduced throughout the volume, would afford invaluable assistance to the student and practitioner, were it only in clinical illustration of the department of practice which they are intended to portray. But the characteristically independent and ingenious comments with which they are accompanied, and the generally clear and full directions as to diagnosis and treatment, which are added by our author, render his book as instructive and reliable in its teaching as it is interesting and authoritative in its narrative and literature. In short, although some of the cases are not altogether satisfactory, and while in some minor details as to dressings it may not always supply the wants of the beginner, there is very little left undone for all the proper purposes of such a work; so that as a guide for students of every class, as a means of reference for all grades of practitioners, and as an index and a model for other writers on its different topics, it must long continue among the best of its class in our language, if not without a superior in any other.

We have been much interested in the introductory chapters, and would recommend them to the particular attention of the young practitioner. He may safely depend upon them as replete with sound doctrine, and as affording many easily comprehended practical precepts and very important guiding principles. The first of these chapters contains a clear and concise account of the different forms of fracture, as divided and defined in accordance with English and American established usage. In these definitions Dr. H. very prudently takes the nomenclature as he found it; and, although he refers to the logical superiority of the French interpretation of the terms simple, compound, and complicated, as designating fractures, he avoids incurring the risk of crippling his phraseology, in a vain effort to substitute the foreign idiom for our own. Chapter II., on the general etiology of fractures, presents several interesting cases of intra-uterine fracture. Chapter III. is very instructive, and especially important to the learner, while it is well worthy of careful study by experienced surgeons. Among other practical hints of moment, we may refer especially to two. In discussing the difficulty and occasional impossibility of producing crepitus, he says:—

> "Whatever mere theorists may say to the contrary, and notwithstanding surgeons up to this time have rarely ventured to allude to this subject, the fact is so that we do not usually 'set' broken bones. We do not, even at the first, bring them into complete apposition unless it is as the exception. I speak of bones once completely displaced by overlapping, and these constitute the majority of examples which come under the surgeon's observation." (p. 42.)

On the next page he quotes Malgaigne, to the same effect, in the following words:—

> "Second. That overlapping is the most stubborn of all. Here I will add a disagreeable truth, which classical authors have kept too much out of sight,

namely, that it is so stubborn that in an immense majority of cases the efforts of art are unable to overcome it."—*Traité des Fractures et des Luxations*, t. i. p. 102.

There is no greater bugbear among patients, or source of fallacy, vexation, and injustice among surgeons, than this idea of "setting" broken bones; and it is very satisfactory to find it so unceremoniously handled by our author. In thus again fulfilling his well known mission, the reporter on deformities from fractures renders a service to the future members of the profession which has not been without effect upon his older brethren. Few surgeons will demur to his proposition, as broadly stated, but it need not be looked upon as involving any serious reflection on the sufficiency of our art. It simply admits a very natural truth, which ought to be acknowledged by every reasonable person, out of the profession as well as in it, that no one should expect a bone once badly broken to be restored by human intervention to the integrity originally conferred upon it by Almighty power. The true aim is to effect as near an approach to restoration as usefulness and ordinary appearances may require. It is the lack of this usefulness and tolerable contour, only, that constitutes the lameness and deformity which are to be reprobated; and, even here, the nature of the injury, and the attendant circumstances, must alone determine the amount of deviation from the original condition which should be regarded as excusable. The investigations and statements of Dr. Hamilton have already done much towards the removal of the misconception and embarrassment attendant on this question; and it is to be hoped that he may succeed, if such a thing be practicable, in erecting something like a standard which may be generally agreed upon for the protection and satisfaction of all parties who may hereafter be involved, either as plaintiff or defendant, in the miseries of a prosecution for "malpractice."

The next point to which attention may be invited is less novel in its character; but it is still more important in its bearings, since it refers to the mode of examining a fracture, in making out the diagnosis. Our author's advice is so good and so well expressed, that we quote the concluding paragraphs in full. They may be read with advantage by every one, at the same time that they afford a fair idea of his style and mode of teaching.

> "I cannot dismiss this subject without calling attention to the necessity of exercising care and gentleness as well as skill in the examination of broken limbs. Nothing, in my opinion, betrays a lack of judgment as well as of common humanity on the part of the surgeon, so much as a rude and reckless handling of a limb already pricked and goaded into spasms by the sharp points of a broken bone. It is not enough to say that such rough manipulation is generally unnecessary, it is positively mischievous, provoking the muscles to more violent contractions; increasing the displacement which already exists, and not unfrequently producing a complete separation of impacted, denticulated, transverse, or partial fractures, which can never afterwards be wholly remedied; augmenting the pain and inflammation, and not unfrequently, I have no doubt, determining the occurrence of suppuration, gangrene, and death.
>
> "In proceeding to establish the diagnosis in any case, the surgeon should sit down quietly and patiently by the sufferer, so as to inspire in him from the first a confidence that he is not to be hurt, at least unnecessarily. He ought then to inquire of him minutely as to all the circumstances immediately relating to the accident, in order that he may determine as nearly as possible its cause, which alone, to the experienced surgeon, often affords presumptive, if not conclusive evidence as to the nature and precise point of the injury. From this, he should proceed to examine the disabled limb; removing the clothes with the utmost care by cutting them away rather than by pulling; and, when completely ex-

posed, he should notice with his eye its position, its contour, the points of abrasion, discoloration, or of swelling; and not until he has exhausted all these sources of information, ought the surgeon to resort to the harsher means of touch and manipulation. Nor will his sensations guide him to the point of fracture by any other method so accurately as when, the patient being composed and his muscles at rest, he moves his fingers lightly along the surface of the limb, pressing here and there a little more firmly, according as a trifling indentation or elevation may lead him to suspect this or that to be the point of fracture. If the skin is more than usually tender, a few drops of sweet oil or of fresh lard laid upon its surface, or even moistening the skin with tepid water, will render this examination less painful, whilst it will facilitate the diagnosis, by rendering the tactile sensation somewhat more acute.

"The limb, in case of a supposed fracture of a long bone, may now be measured with a tape line, and compared with the opposite limb, having first marked with a soft pencil or with ink the several points from which the measurements are to be made.

"Finally, if any doubt remains, the limb must be firmly but steadily held while the necessary manipulations are performed, for the purpose of ascertaining the existence of mobility and of crepitus. Mobility is most easily determined by giving to the limb a lateral motion, but in general, crepitus is most effectually developed by gentle rotation. If the place of fracture is already pretty well declared by the previous examinations, the surgeon should place one finger over the suspected point, during this manipulation, by which means the crepitus will be more certainly recognized.

"I do not often find it necessary to resort to anæsthetics for the purpose of insuring quietude and annihilating pain in making these examinations, since it is seldom that the patient need to be much disturbed; but if the examination is not satisfactory, and the diagnosis is important, I do not hesitate to render the patient completely insensible, after which the questions in doubt may be more thoroughly investigated and perhaps definitively settled.

"It is scarcely necessary to say that the earlier the examination is entered upon, the more readily will the diagnosis be made out; and if, unfortunately, some time has unfortunately elapsed before the patient is seen by the surgeon, and much swelling has taken place, the examination is still not to be omitted, and whatever doubts remain we must endeavour to remove by repeated examinations made from day to day until the subsidence of the tumefaction has brought the surfaces of the bone again within the reach of our observation." (pp. 43–4.)

Chapter IV., on the repair of broken bones, is highly interesting also, although Dr. H. does not profess to enter into a very full consideration of the process. There is, nevertheless, much characteristic and positive knowledge afforded in his discussion of the practical relations of the subject, and as complete and satisfactory an exposition as need be looked for, of what we really know in relation to a question which appears to have been overloaded with a very troublesome amount of speculation. As our author's views on these subjects are already well known, it is unnecessary to dwell upon them here. Instead of quoting the six different paragraphs in which he describes at length as many different modes of union, we give his summary in the following words:—

"In short, we conclude that fractures of adult human bones, whether placed end to end or overlapped, unite most naturally and most promptly either immediately or mediately, and in the same manner that soft tissues unite; that is to say, without the interposition of any reparative material, or through the medium of an intermediate, permanent callus; and that all deviations from these simple methods are accidental, or the result of disturbing influences." (p. 49.)

The old-fashioned notions about provisional callus, which our author, to some extent, in common with Paget, was instrumental in overturning, are treated, as might be expected, with very little consideration.

"Provisional callus is just as much the necessary result of natural laws as is definitive. It is formed because in that condition of the parts and of the general life its formation was inevitable. Whether useful for the purposes of repair or not, it will under certain circumstances exist. In the repair of certain fractures, provisional callus, it is conceded, seldom occurs." (p. 49.)

Dr. H. exposes the absurdity of regarding that as a "provisional" effort of nature, which is found in action so often where it is not actually needed, and yet does not occur in the cases of the patella, olecranon, and other similar bones, where such provisional arrangement would seem to be especially desirable. Provisional or temporary callus, therefore, "has no final purpose, but is the unavoidable result of certain abnormal conditions," which he specifies as a greater or less amount of irritation occurring in vascular soft parts, which, being susceptible of irritation, are consequently involved in it. He is not so certain as to fractures occurring in children, the observations not having been sufficiently numerous to determine absolutely the laws of repair at this age. He is inclined, however, so far as he may be justified by a few examinations, in the repair of young bone, to accept, with but little qualification, the doctrine of Dupuytren.

The succeeding three chapters are among the best in the book. Chapter V., on the general treatment of fractures, is, of course, the most interesting and instructive, as it is the most important. We need not say that it evinces a large share of judgment and experience, as well as practical skill and ingenuity. The care, precision, and fulness of detail, and clearness and simplicity of language with which its topics are generally discussed and the various practical rules laid down, are well calculated to increase our confidence in the subsequent portions of the volume. We are much pleased with many of his ideas, and have no hesitation in accepting his counsels as reliable throughout. Although liberal towards opposing views, he is none the less decided in delivering his own, wherever really important, at the same time that he is abundantly conservative.

Something more, perhaps, as has been already intimated, might have been occasionally said in regard to the mode of manipulating and to the application of rollers, splints, and other appliances, although such elementary instruction belongs rather to the works on bandaging and minor surgery. Our author seems to expect the necessary tact to have been already acquired by his readers; and hence merely alludes to the indispensable qualifications of a dresser, without dwelling on the mode and course of training by which these qualifications may at least be very much improved, if they cannot be developed. It may here be remarked that the same tendency to take a certain amount of practical knowledge for granted in the reader is observable in some of the descriptions of the modes of dressing special fractures. Greater particularity may not have been compatible with the author's plan, and a natural desire to limit the size of his volume; but, while inclined to yield to his better judgment, our desire is, nevertheless, to put in a plea for the benefit of the untrained practitioner, since, with very little direction, in addition to what the author gives, even the tyro might be enabled to dispense with the otherwise necessary assistance of less desirable preliminary teachers.

A few of the points which have attracted our attention in this chapter may be briefly noticed. After cautions in regard to the handling of the broken limb, Dr. H. lays down the rule, as, with certain explanations, one rarely to be departed from, to restore the displaced fragments to their nearest practicable apposition as soon as possible after the occurrence of the injury. Excellent reasons are given for avoiding the questionable practice of waiting blindly for the subsidence of the often trifling irritation and inflammation before the coaptation is attempted. He justly considers it important to effect the reduction and comparative repose of the broken limb, in time to anticipate, and, in some degree, prevent, the inflammatory action; but he does not pretend to advocate a resort to the violence which would be inevitable in an attempt at complete reduction after the injured parts had become seriously excited, under the prolonged irritation of the displaced and unsupported fragments. Nor does he urge the application of the dressings, except for mere support, so long as this unfortunate state of things continues. In this he only obeys the rational precept of Hippocrates, and adopts the practice of most hospital surgeons, including Malgaigne, whose refinements on the subject do not seem to please him. The use of anæsthetics, in some cases, gives the practitioner of the present day a material advantage over his predecessors in the reduction and proper dressing, as well as in arriving at a diagnosis in fractures. We are glad, also, to find that Dr. H. does not approve of the employment, except in rare instances and for especial purposes, of any kind of bandages next to the skin. In objecting to the resort to roller dressings under the splints, as often injurious and generally useless for any purpose not attainable in the adjustment of the splints, he justly regards the former as more dangerous than the latter. A careful and experienced surgeon may sometimes do better for some fractured limbs with the primary bandage than without it; but most young surgeons would act more wisely in following Dr. Hamilton's precepts.

The various materials for splints are mentioned, with comparative appreciation of each kind. Of these Dr. H. prefers plain straight strips of wood, carefully padded with cotton batting, and the gutta-percha. He does not fancy metallic splints, except the wire gauze as improved by Dr. Bauer; nor is he an admirer of the many sophistications and delusions in the shape of patent carved splints and beautifully jointed apparatus. Pasteboard, binders' board, leather, bark, felt stiffened with shellac, and even old hat in an emergency, are approved of as often useful. He prefers the gutta percha as more available, on account of its malleability in the warm state and stiffness in the cold, and gives special directions for its use and mode of application. The immovable apparatus of dextrine, starch, and other similar materials, is fully described, and the different kinds compared. He approves, occasionally, of using the starch bandage, after Suetin's movable-immovable mode—which is to cut the casing open so as to admit of inspection of the limb and readjustment of the fragments—but he objects decidedly to any use of this form of dressing in the early stage of the treatment, and gives the usual reasons for the rejection. In most of the views above alluded to we entirely concur. We prefer a kind of agglutinated bandage, however, which he does not describe. It may be made, as employed by some French surgeons, of the calcined plaster in powder, mixed with warm starch mucilage at the moment of application, and well laid on with a brush; but a still more convenient and efficient method is to mix calcined plaster with pulverized gum Arabic, in the proportion of one part in bulk of the latter to about twelve parts of the former. This last-named compound is to be made into a liquid paste with a small quantity of water, and quickly laid on with a large varnish-brush, in the usual manner, before it has had time to set. It is sufficiently elastic, smooth, firm, light, dries promptly, is easily cut, and having a polished surface, is readily kept clean.

Chapter V. ends with a few paragraphs in relation to compound fractures. His remarks on the subject are excellent, so far as they go; but it is to be regretted that he did not devote a separate and entire chapter, instead of two or three pages, in different places, to the consideration of this often most embarrassing form of double injury. There is so much to be said, and yet so little, generally, to be found on this topic, that we are surprised that Dr. Hamilton did not seize the opportunity to fill a blank which the young practitioner meets in nearly every work on surgery.

Chapter VI. is a well-arranged and comprehensive dissertation on retarded union and ununited fracture. A very complete sketch of the subject, together with a copious array of references and a summary of indications for the treatment, is presented in this chapter, for much of which the author acknowledges his obligation to the well-known and often-quoted monograph of Dr. G. W. Norris, published in this journal in 1842.

The seventh and last chapter of the introductory series is an instructive essay on bending, partial fractures, and fissures of the long bones, in which are given the result of a good deal of original investigation, experimental as well as clinical, in addition to a full share of critical inquiry. As this article has already been published and very generally noticed, it is unnecessary to dwell upon it here, except to say that the author agrees with Malgaigne in doubting the reality, as at least not demonstrated by dissection, of permanent bending of bone without more or less partial fracture of the sub-periosteal fibres.

A disproportionate share of attention has perhaps been given in the foregoing paragraphs to the preliminary portion of Dr. Hamilton's work. It is certainly an interesting one, however, and must necessarily have a material influence in determining an estimate of the value of the treatise. Our confidence in the accuracy and usefulness of the subsequent special applications of the principles announced in the early chapters, is fully justified by the soundness of those principles, as well as by the manner in which they are set forth. We cannot undertake the task of discussing many of the points which we have noted in looking through the very interesting chapters on the different fractures and luxations. They can be fairly comprehended only through a careful study in the pages of the book itself; and we take pleasure in recommending such a study to every member of the profession who may be exposed to the grave responsibility of treating the always distressing and too often seriously compromising injuries which are therein forcibly, carefully, and concisely explained and their proper treatment, under all probable contingencies, pointed out.

The chapters on fractures of the jaw, of the vertebræ, and of the clavicle, among those of the smaller bones, have especially interested us; and it is gratifying to find that the labours and progress of our countrymen are exhibited and discussed with much industry and candour, as well as independence of practical appreciation.

With regard to fractures of the vertebræ, whether of the bodies or processes, Dr. H. decidedly objects to operative procedures of all kinds, and recommends a palliative treatment, which we agree with him in regarding as the only safe one; nor does he neglect to remind us that very important assistance and alleviation may be afforded by the surgeon.

Under the head of prognosis of fractures of the ribs, he rather surprises us with the remark that "death occurs sooner or later in a pretty large proportion of the cases in which the ribs have been broken." This statement is not in accordance with our own impression derived from reading and a considerable amount of public and private experience. Some statistical evidence in support of such a proposition is surely needed. Certain complications of fractured ribs are obviously very serious, but it is hard to believe that one of the most common forms of fracture is so often dangerous in the extent of violence produced; and there is reason to suspect that even the proportion of bad complications, which would seem to be referred to, is somewhat overrated by our author. There is little doubt, at all events, that simple fracture of the ribs ought not to be subjected to this alarming imputation without a decided qualification as to the danger being due to the mischief done, at the same moment, to the viscera of the chest, or to other parts. In the treatment of fracture of the ribs, Dr. Hamilton prefers the band or broad roller to the more recently devised expedient of semicircular adhesive strips. He objects to the latter as too liable to become loosened, after a few hours, by the slight but uninterrupted play of the ribs. We regret this, because we are satisfied that he is in error. There is no comparison between the comfort of the adhesive plaster dressing, carefully applied on the affected side, and that of the old-fashioned circular bandage; nor is the latter by any means equal to the former in permanence, if it be in actual efficiency. We have so often seen the superiority, for all essentially practical purposes, of the plaster over flannel or muslin, that we should insist upon its trial in all cases, and especially in the complicated forms. The circular adhesive bands are less apt to slip, or to yield, than the circular bandage; and hence their application around the chest may be desirable sometimes instead of the semicircular strips, which are applied only to the injured side. This latter plan, however, is vastly more comfortable and very often all-sufficient, as it does not require as much attention as either of the other bandages, and can almost always be applied so as visibly to check the action of the ribs under it, while the movement on the other side is very little altered. The plaster dressing has long been known to be almost equally efficient, when properly applied, in the treatment of fractured clavicle, being assuredly less likely to slip, except perhaps in very warm weather, than ordinary muslin or flannel rollers; but it is disagreeable to the patient, and troublesome to the surgeon; and this disadvantage is not only greater than in the application to the chest, but it is not compensated for by an adequate increase of comfort and security in the retention of the parts concerned.

Whatever the kind of retentive means employed, the patient ought to be confined to his bed during the early portion of the course of treatment for fracture of the ribs. This rule must necessarily vary according to circumstances, but should admit of very few exceptions for the first few days, and is imperative where no bandage can be borne. The advantage of the supine position—with only a large, well-stuffed pillow, too—is very striking in the treatment of fractured clavicle, and in none more so than in displacements of the fragments of this bone which are otherwise unmanageable. We have seen this demonstrated often enough to have acquired more faith in the simple method of Hippocrates than in the best of the modern contrivances, whether the patient be young or old, and especially if young, notwithstanding the well-known difficulty in confining these two classes to their beds. Dr. Hamilton reminds us that the treatment by the recumbent position, with or without a pad or small pillow between the shoulders, and with or without a bandage or other supports for the arm, is, and has been a favourite one with many surgeons on both sides of the Atlantic and the British channel. We prefer combining the occasional use of Fox's apparatus, as a *placebo* no less than an additional support, with position on the back, in most of the easy and all of the bad cases. It is probable that the importance of bodily repose in every case of fracture, during the inflammatory stage, is not sufficiently attended to. In short there is not a fracture in any part of the frame in which the patient would not be safer in bed than out of it, and a material gainer by the additional restraint, for at least a week after the reception of the injury, and in many cases for a longer period.

The views of Dr. Hamilton in regard to the rarity of cures, without more or less displacement, of certain fractures of the clavicle, are well known and doubtless very generally agreed to. His chapter on this variety of broken bone is able and interesting, replete with learning and yet eminently practical. The author fully sustains his position as to the persistence of a certain amount of deformity after these fractures, and gives a very instructive history of the various theories and modes of treatment advocated from the time of the father of medicine and surgery to the present day. He presents two cases, in conclusion, which incline him to the belief, along with many surgeons of experience, and in which we fully coincide, that the recumbent posture on the back may secure as good a result, in many cases, as any form of apparatus.

He describes and represents an apparatus of his own, however, which is a modification of that of Dr. Fox, and would seem to be perhaps rather more efficient, and therefore an improvement; although it is scarcely equal to the convenient and complete contrivance of Dr. R. J. Levis, which he does not even mention. The deviations in Dr. Hamilton's dressing from the arrangements of Fox's apparatus, which we have seen employed in the Pennsylvania Hospital, and have resorted to ourselves, are scarcely sufficient to distinguish it as anything more than one of the numerous variations, like the neat and ingenious one of Dr. Levis just alluded to, of the ordinary form. The excellence of the typical apparatus, as contrived by Drs. Washington and Fox some thirty years ago, in the Pennsylvania Hospital, and first described by Dr. Geo. Fox (*Philad. Med. Exam.*, March, 1838, p. 108), is admitted by our author. He refers also to a very similar combination of sling, pad, and ring, which has been at least as long in common use in England, and which is probably the apparatus designated by Mr. H. T. Chapman (*Atlas of Surgical Apparatus*, London, 1832, pl. viii.); but he very properly, as we think, refuses to allow, what it would be difficult to prove in any fracture apparatus, that this dressing completely answers all the indications in a majority of cases. A needless amount of space, however, is expended by our author on the discussion of its merits, as claimed to be established in the use of it at the Pennsylvania Hospital. The apparent difference of opinion as to the curability of fractures of the clavicle, which seems to have exercised him, was one of words more than of actual doctrine, since the extravagant expressions in the works of Drs. Smith and Sargent were too vague and sweeping to justify the amount of importance awarded to them in the present volume. In the course of the last twenty years, we have seen repeated instances of more or less deformity, as well as others in which there was no perceptible displacement left, after fracture of the clavicle in cases treated at the Pennsylvania Hospital. We have witnessed them in private practice also, after the careful employment of the sling and pad of Fox. For years past we have been in the habit of altering and adding to the apparatus, according to the requirements of individual cases; and never have regarded it as either perfect in its operation or stereotyped in form and character. And yet, with the ordinary qualifications, in speaking of the dressing of a notoriously unmanageable form of fracture, it was surely fair enough to say that "the chief indications in the treatment of fracture of the clavicle are perfectly fulfilled by the use of this apparatus." All that can be—and, probably, is—claimed for it is, that, in skilful and attentive hands, it accomplishes as much as any other mere apparatus; while it is more available, because more easily constructed, more easily watched and readjusted, and less irksome to the patient.

No public hospital should be held responsible for particular forms of apparatus or modes of treatment, without a precise and formal recognition of that responsibility by the surgical authorities of the institution interested. And we would be sorry to believe that the hospitals of the country were not all of them sufficiently progressive in their operations to admit of the continual resort not only to minor adaptations of old means and appliances, but to entire changes, when properly suggested. This has been the custom in the Pennsylvania Hospital; and it will doubtless continue, with respect to fractures of the clavicle as to other lesions. Indeed, we happen to know that in the course of the last few years six different kinds of dressings have been tried in fractured clavicle alone in that hospital, some of these having been repeatedly employed. Under this impression we regret to see it stated, in a work of such authority as this, that since the introduction, in 1828, of Fox's Apparatus into the Pennsylvania Hospital, "no other has ever been used in that institution for the treatment of broken clavicles." (p. 199.)

Fractures of the extremities, as might well be expected in such a work, are very thoroughly and honestly discussed, and at the same time illustrated with many interesting cases, and numerous engravings. No one can study our author's very able and elaborate exhibition of the history, diagnosis, prognosis, pathology, and treatment of fractures in the shafts and joints of these all-important locomotive organs, without acquiring a greatly increased confidence in the various resources of our art, as well as a much higher estimate of the enlightening influence of true science upon a branch of practice which is too often regarded as the province of the empiric and the mechanician. We have read his chapters on fractures of the arm, shoulder and elbow, the forearm and wrist, the hip-joint, the thigh, knee, the leg, and the ankle, with great interest and care, and have noted many views and facts as entitled to particular attention. We are, however, obliged to forego the satisfaction of remarking upon these and of venturing to express some difference of opinion in relation to a few of them; and are forced to confine our notice to a very cursory view of the remainder of the volume, notwithstanding the paramount importance of the topics. We regret this the less, however, because the work is of so much intrinsic value that we are sure it will be in the hands of every American surgeon.

Passing over, therefore, for want of opportunity to discuss their many interesting and frequently novel points, fractures of the scapula, fractures about the head and neck of the humerus, oblique fractures of the humeral shaft, the embarrassing and too often permanently mischievous fractures of its condyles and of the articular heads and apophyses of the adjoining bones of the forearm; passing over, too, the fractures of the forearm, and especially the fractures of the radius in its lower third, including the vexatious and still disputed complications with the carpal joint, we can merely stop to invite attention to a few of the valuable hints afforded by our author.

Among these may be mentioned very useful tabular arrangements of the symptoms or differential diagnosis of fractures and other injuries about the shoulder and elbow-joints respectively. These tables present precise, full, and comprehensive exhibitions of these difficult questions, in so clear and methodical a manner as to bring the diagnosis in all ordinary cases within the reach of every intelligent surgeon. The remarks on the displacements in oblique fractures of the humeral shaft, the author's plan of overcoming them, and the difficulty, not to say impossibility, of maintaining permanent extension, in such cases, are also highly interesting. Still more so are the observations in regard to the dangers and causes of anchylosis and deformity of the elbow and wrist-joints; the importance of early resort to passive motion; the cautions in respect to the conduct of this exercise; the danger of sloughing in certain displacements; the impropriety of graduated compresses in the management of fractures of the forearm; the advantages of Lonsdale's supine position in the treatment of these fractures; the treatment of the fractures of the carpal extremity of the radius, in which are discussed the comparative value of the different plans of Barton, Bond, the author, and others, in this country, and of numerous British and continental surgeons.

Leaving the upper extremities, the fractures of the pelvis will be found to be fully considered; and the succeeding chapter (XXVIII.) presents an admirable and most instructive monograph on fractures of the femur. This important injury is here faithfully and minutely studied in all of its varied and difficult aspects. There is probably not so complete and comprehensive, practical and theoretical survey of the whole subject in the English language, and we doubt whether there is any in existence. It is well worth an analysis by itself, and would stamp the character of the book as one of high authority, even if it stood alone in its peculiar merits. By this we must not be understood, however, as subscribing to all of its doctrines, since some of its positions must be regarded as open to discussion. A few matters only can be glanced at, which ought not to be passed by in silence. In the first place, it may be said that, after as fair, full, and close an examination of all the evidence within his reach, and an impartial summing up of the testimony upon the interesting but difficult subject of union within the capsule, Dr. Hamilton arrives at the safe conclusion that "in it all we think we see enough to warrant a belief that under certain favourable circumstances bony union may occur, but not enough to establish it beyond all doubt." So far he is in the position assumed by Sir Astley Cooper fifty years ago, and as we firmly believe, never since successfully confuted. He goes beyond Sir Astley, however, in expressing his scepticism as to every specimen of bony union which he has yet examined. He is entitled to all the benefit of the very reasonable doubt which he so frankly expresses; especially as he does all that he could do for his patients, by giving them the same benefit in making an attempt, by proper treatment, to bring about the consummation which he so slightly expects. The great advantage of treatment, when it can be tolerated, in addition to the approximative union to be hoped for, is, as he intimates, due to the possibility of the existence of an extra-capsular instead of an intra-capsular fracture. We would prefer the careful employment of a modified Hartshorne's splint, one of Gilbert's, the usual Physick and Desault, or Haynes Walton's modification of Liston's splint, with a particular arrangement of extending and counter-extending bands, to the Hagedorn apparatus of Gibson, or the bed of Daniel, which are recommended by Dr. Hamilton. The latter of these two is expensive and insufficient, and the former is not more available, while it is more complicated, and, according to common experience, much more disagreeable to the patient than either of the single long splints just enumerated.

The next point to be referred to is the prognosis, as to overlapping and shortening, in oblique fractures of the femur. The frequent, if not invariable, occurrence of shortening after these fractures, which Dr. Hamilton has demonstrated in his "deformity" reports, has reopened an old question, which has been very considerably discussed since general attention was attracted to it by our author. It does not appear to us that his statements and those of the authors quoted have yet been formally controverted, or that they can be, so far as the mere question of fractions of an inch is concerned, until a much larger number of cases have been recorded for the especial purpose of testing his conclusions. Nor do we think that even then the negative position can have a much better basis than it has at present, which is one of mere opinion, unless some mode of measuring can be established which will meet with general approbation. We are satisfied, however, that, within certain limits which are not easily defined, the result depends more upon the amount of vigilance and good management of the surgeon in each individual case than is made to appear by Dr. Hamilton, or than can be attributed to the nature of the injury or to the particular kind of apparatus used.

It is to be regretted that he has not expressed this idea of relative recovery, at least in such a manner as to protect himself more certainly against being misunderstood by careless readers; since, in the very laudable desire to establish the actual frequency of what he terms deformity, he runs, we fear, the risk of affording mischievous aid and comfort to incompetent pretenders, and a corresponding amount of injurious discouragement to skilful practitioners. The question is not so much one of the difference in fractions of an inch between the dimensions of the reunited fragments of a broken bone and of its uninjured fellow, as it is a question of perceptible disparity between them in shape and function. Notwithstanding the difference of opinion among high authorities as to the effect of a few lines or centimetres of shortening, we should care little about the loss of half an inch in length, or the gain of an inch or two in thickness, provided the patient could walk without a limp, and had escaped without an evidently crooked limb. Arithmetical investigations, supposing the accuracy of measurement to equal the precision of the record of it, are doubtless very useful as perhaps the only unequivocal means of describing a series of definite results; but until the pathological significance of these merely mechanical data in fractures has been positively ascertained by a long series of comparisons with the corresponding amount of impairment of form and function, and by a still longer series of comparisons between the lengths of unbroken limbs, we are not inclined to admit the argument afforded by them as conclusive against the authority of ordinary observation for a more favourable opinion than that expressed by Dr. Hamilton. The extent of permanent damage resulting to a broken limb is surely not much to be regretted, when it requires an examination with the square and rule for its detection.

We have not been able to find any precise directions given by Dr. H. as to the proper mode of measuring, and are therefore somewhat at a loss in regard to his practice in this important matter. He appears, however, to use the tape altogether, since no mention is made of Mayor's dividers or of any other instrument, and the "fixed points" selected are the anterior-superior spinous process of the ilium above, as usual, and the "internal condyle or the malleolus internus" below. (p. 385.) Now unless the numerous measurements appealed to by Dr. H. as confirming his theory of invariable shortening were made with the malleolus internus as the lower fixed point, we should not be disposed to accept them as entitled to attention. If this exception be not in accordance with Dr. H.'s own views, which we can hardly believe, it is certainly sustained by good authority; and at all events it has sufficient force to damage seriously the statistics which may be based upon that mode of measurement. Without taking the time to discuss the comparative value of the malleolus and the internal condyle as recognizable "fixed" points, we shall take for granted that the malleolus was the point selected in all cases by Dr. H. Even then, however, we are not released from doubt, since this only part which is really available as a point, is sometimes not fixed enough to enable the most experienced and expert surgeons to agree upon a measurement, or even to arrive at the same measurement themselves in successive attempts on the same limb. We have known this to be the case with anatomists and hospital surgeons who have been measuring for more than thirty years, and are as well able to arrive at a result as any operator in the world. We have no faith in the minute accuracy of the tape measure, and not much more in that of the dividers. We prefer a wooden or metallic graduated rule, long enough to reach from head to foot, and furnished with sliding cross-pieces, also graduated, like the gauger's measure; but we doubt even this for some cases, on account of the difficulty as to points. But, admitting our certainty of measurement, how are we to be sure that our patients, or some of the other patients measured, were originally symmetrical? We may here present an imaginary difficulty, but insist upon it, nevertheless, until the fact of constant equality of length between the right and left limbs has been established. We are not prepared with positive data as to the amount and frequency of deviations in what are supposed to be healthy frames, *especially in males*, although from the ease with which left-handed persons are recognized by the glovemaker and the shoemaker, and from our knowledge of frequent inequalities in the chest and other parts, we have some very reasonable suspicions on the subject. There is no doubt, however, as to the not uncommon occurrence of inequality from disease, under circumstances, too, which would be likely to mislead attention unless it were suspected. We remember a curious instance of this at the Pennsylvania Hospital recently, in which the sound limb was found to be elongated by a thickened acetabulum. We have heard also of limbs being actually lengthened under treatment for fracture; and, of course, have met with limbs recently fractured on one side, and shortened from old fracture on the other.

In short, although the good effects of treatment in oblique fracture of the femur have undoubtedly been exaggerated, in the desire to vaunt the different forms of apparatus, we see no good reason for denying the fact that immunity may occur sometimes, notwithstanding the average result of the author's 115 observations, and the positive assertion of Malgaigne and others. Whatever value may be attached to the positive view of the question, the many interests involved are sufficiently important to justify the quotation of our author's negative conclusions in his own words:—

> "By a reference to my 'Report on Deformities after Fractures' it will be seen that the average shortening in fractures of the upper third of the femur, in the cases examined by me, was about four-fifths of an inch; in the lower third it was a fraction over three-quarters, and in the middle third a fraction less than three-quarters, of an inch; and the average of the whole number was almost exactly three-quarters of an inch (three-quarters and $\frac{1}{47}$). These analyses were made upon simple fractures, and were exclusive of those in which no shortening at all occurred. An analysis which included also those which had not shortened, reduced the average shortening to half an inch and about one-tenth.
>
> "An examination of cabinet specimens does not present a result so favourable even as this. Of nineteen fractures of the shaft of the femur contained in Dr. Mütter's cabinet, not one seems to have been shortened less than one inch. Specimen B 63, a fracture of the middle third, is united with a shortening of two inches and a quarter; and specimen B 130, imperfectly united after a fracture through the middle third, is overlapped three and a half or four inches.
>
> "In conclusion, I wish to say, briefly, that, in view of all the testimony which is now before me, I am convinced—

"1. That in the case of an oblique fracture of the shaft of the femur occurring in an adult, whose muscles are not paralyzed, but which offer the ordinary resistance to extension and counter-extension, and where the ends of the broken bone have once been completely displaced, no means have yet been devised by which an overlapping and consequent shortening of the bone can be prevented.

"2. That in similar fracture occurring in children, or in persons under fifteen or eighteen years of age, the bone may sometimes be made to unite with so little shortening that it cannot be detected by measurement; but whether in such cases there is in fact no shortening, since with children especially it is exceedingly difficult to measure very accurately, I cannot say.

"3. That in transverse fractures, or oblique and denticulated, occurring in adults, and in which the broken fragments have become completely displaced, it will generally be found equally impossible to prevent shortening; because it will be found generally impossible to bring the broken ends again into such apposition as that they will rest upon and support each other.

"4. That in all fractures, whether occurring in adults or in children, where the fragments have never been completely or at all displaced, constituting only a very small proportion of the whole number of these fractures, a union without shortening may always be expected.

"5. That when, in consequence of displacement, an overlapping occurs, the average shortening in simple fractures, where the best appliances and the utmost skill have been employed, is about three-quarters of an inch.

"If we consider the muscles alone as the cause of the displacement in the direction of the long axis of the shaft, the shortening of the limb, other things being equal, must be proportioned to the number and power of the muscles which draw upwards the lower fragment. This will vary in different portions of the limb, but nowhere will this cause cease to operate, nor will its variations essentially change the prognosis.

"I have not intended to say that other causes do not operate occasionally in the production of shortening, but only that muscular contraction is the cause by which this result is chiefly determined, and that its power will be ordinarily the measure of the shortening." (pp. 403, 404.)

The only remarks we have to make in regard to these conclusions are—1st, that they speak well for the average success of the treatment in the cases examined; 2d, that tape measurements are not certain enough to afford reliable data when quarters of an inch are in dispute; 3d, that, until the rule of conformation between limbs of the two sides of the body is shown to be that of a constant equality in length, the small amount of difference detected in the mechanical survey may sometimes be an imaginary or theoretical rather than a real or practical effect of fracture; 4th, that the question of shortening may be influenced by accidental variation through previous disease or injury, whatever the normal equality may be, and that, at all events, the amount of perceptible lameness may vary in different individuals with the same amount of physical deformity; and lastly, that no amount of negative testimony, such as Dr. Hamilton presents, can overturn the evidence of the positive facts which we are satisfied have been observed. We have not the slightest doubt that oblique fractures of the thigh have been and can be united without observable overlapping or shortening; and that they are not so rarely united without material deformity as our author would have us to believe.

In the treatment of all fractures of the femur, Dr. Hamilton, we think, rightly prefers the straight position. In this he differs from some American surgeons, of authority, who still adhere to the flexed position or the double inclined plane for certain forms of this lesion, although for fractures of the middle third there are very few who now resort to this nearly obsolete plan.

> "In my tour of 1844," says he, "during which I visited very many of the hospitals of Great Britain and upon the continent of Europe, I do not remember to have seen the flexed position once employed in the treatment of a broken thigh; and I shall presently show that the straight position is at the present moment very generally adopted by the best American surgeons.
>
> "There have been, then, three grand epochs in the history of the treatment of fractures of the thigh.
>
> "1. That in which the straight position was universally adopted, and which reaches from the earliest periods to the period of the writings of Pott, or to about the middle of the last century.
>
> "2. The epoch of the flexed position, which, inaugurated by Pott, had already begun to decline at the beginning of the present century, and which may be said to have been completed within less than one hundred years from the date of its first announcement.
>
> "3. The epoch of the restoration, or that in which the surgeons, by the vote of an overwhelming majority, have declared again in favour of the straight position. This is the epoch of our own day.
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> "Although American surgeons have generally adopted the straight splint in the treatment of fractures of the thigh, yet the form and construction of the splint have been greatly varied. The simple long splint of Desault, and the more complicated apparatus of Boyer (Fig. 133), have each their advocates; but it is seldom that we meet with these, or with any other forms of apparatus originally employed in foreign countries, without noticing that they have been subjected to considerable modifications; indeed, most of the straight splints as well as double inclined planes in use at present among American surgeons may fairly be regarded as original inventions." (pp. 406, 407.)

There is little doubt of the originality, so far as the knowledge of the introducer reached, of many of these various contrivances; but we are equally well satisfied that very few, if any, of them present a single mechanical expedient of value which has not been anticipated, in some shape or other, long ago in European practice. The best of them are more or less modified repetitions of older instruments in this country, which, again, are revivals of forgotten predecessors in the old world. The great majority of them have the very serious objection of complexity, which ought to be opposed by every true surgeon; and too many of their devisers add the disgrace and folly of patent-right restrictions to the already heavy burthen of perplexity in application and unnecessary cost of construction. Expense is, of course, a minor consideration in a question of humanity, where anything material is to be gained by the outlay, even for those who are not among the fortunate in this world's goods; but there is no need of hesitation on that score as to the duty of the surgeon in selecting fracture apparatus. Instead of exemplifying the general sense of the insufficiency, for all proper purposes, of the common splints, as Dr. Hamilton supposes in respect to fracture of the thigh, the multiform machines which are advertised to "meet every indication" are quite as apt to be so many inventions of the enemy, to save the labour of the responsible attendant, and to flatter him with the expectation of accomplishing, by means of screws, and bolts, and joints, what his indolence or ignorance would prevent him from doing with the ordinary means. The advantages of simplicity in fracture dressing are so obvious, and the dangers, hindrances, and delusions of a departure from it are so frequent and glaring, that we regret to see some very formidable pictures of these apologies for want of vigilance and skill allotted so large a space among Dr. Hamilton's generally excellent illustrations. They are out of place in such a work, even as examples to be shunned, which, from his preface, we understand to be the part he intends them to perform. Our author is clear enough in his own record and position on the question of simplicity, and we are sorry that any portion of his book is in the least degree exposed to the imputation of being less so than its author. Some of these instruments are certainly ingenious, and creditable to the good intentions of their authors; and, when free from the stain of patenting, may be entitled to notice. This is not the case, however, with others; the inclination of an inexperienced practitioner is so strong to the resort to these often plausible substitutes for intelligent attention to the simple indications, and the temptation to rely upon the supposed mechanical efficiency of the usurping instrument employed, is so injurious, that the less such things are seen in respectable company the better for the profession generally, as well as for their patients.

It has surprised us to find that Dr. Hamilton positively awards to Dr. Josiah Crosby, of New Hampshire, the credit of having brought the use of the adhesive plaster extending bands "into notice, if not indeed of the first suggestion." This is certainly a mistake, unless Dr. Crosby's own account be erroneous. (*Am. Journ. Med. Sci.*, 1854, vol. xxvii. p. 77.) This gentleman claims only to have used it "for the first time in 1849;" that is, at least five years after it had been in constant use at the Pennsylvania Hospital in many cases, and one year after a description had been given of it, with a strong recommendation, by Dr. Sargent in his *Minor Surgery* (edition of 1848, p. 201), and in his American edition (the second) of Druitt's *Surgery*, also published in 1848. Dr. Crosby appears to have presented some account of the adhesive extending bands at the meeting of the New Hampshire Medical Society in 1850. This is noticed in a review of Dr. Sargent's *Minor Surgery* in the *New Hampshire Journal* for August, 1850, which also refers to Dr. Wallace's employment of the strips as described by Dr. S. (See also *N. H. Journ.*, Oct., 1850, p. 65.) Dr. Gilbert, in a paper published in this journal in 1851 (vol. xxi. p. 70), rightly attributed its then comparatively recent introduction into general practice to Dr. Ellerslie Wallace, who had first resorted to it at the Pennsylvania Hospital in January, 1844. (See also *Med. Exam.*, Philad., Dec., 1852.) Dr. Gilbert was preceded by Dr. Crosby only in a paragraph in Dr. Mussey's report on surgery in the *Transactions of the American Medical Association* for 1850 (p. 387), and probably has quite as much right to the credit of success in attracting the attention of the profession to the subject as Dr. Crosby or Dr. Mussey, although neither is entitled to priority of actual publication, and still less to the credit of original invention. The only other claimant is Dr. Gross (*Med. Exam.*, Philad., Nov., 1852), in behalf of Dr. Swift, of Easton, as inventor, and of himself as the promulgator of the practice, in his work on the *Anatomy, Physiology, Diseases, and Injuries of the Bones and Joints*, published in 1830 (p. 50). This last claim is more reasonable, although it rests on a rather slender basis, inasmuch as the only allusion to the subject consists in the mention that the author's preceptor, Dr. Swift, had used two parallel strips of muslin, spread at their upper ends with adhesive plaster, as extending bands in the treatment of certain complicated fractures of the leg, this allusion being followed by a general recommendation of the method as a good one. This statement merely shows that the writer was on the threshold of a valuable improvement, but it does not appear that he pursued it beyond the first step, though this was an exceedingly suggestive one. We are satisfied, however, that Dr. Gross is right in his claim for Dr. Swift, since, as Dr. Wallace has recently informed us, the first employment of the plan in question in the Pennsylvania Hospital was due to a vague hint given him incidentally by Dr. Ennis, a pupil of Dr.

Swift, in which the former merely said that his "old preceptor was in the habit of using sticking-plaster instead of gaiters for keeping up extension in fractured thighs." The idea was soon worked out by Dr. W., and resulted, after many trials, in the arrangement first described by Dr. Sargent. Six months after his first successful experiment Dr. W. again saw Dr. Ennis, and learned from him that Dr. Swift had found that one long parallel strip on each side of the leg, without bandage or circular strips, was all that was needed for the purpose, as they held their places sufficiently under the pressure of the junk bags and splints. This led to the present mode of application, which is erroneously awarded to Dr. Crosby in the report of Dr. Mussey. Dr. Crosby, in his paper, prefers securing the bands with the ordinary circular bandage, according to the original plan of Dr. Wallace. Under the circumstances, it seems strange that the great importance of this improvement of Dr. Swift should not have been recognized and generally adopted, as it is now, long before Dr. Wallace first heard of it from Dr. Ennis. The counter-extending adhesive strips of Gilbert do not seem to have satisfied Dr. Hamilton, who probably under-estimates them as much as Dr. Gilbert may possibly overrate them. We are inclined to think, from what we have seen, that, with care in adjusting them and adapting their width to the size and shape of the parts, and protecting them from moisture, they are more manageable than any other perineal band, and hence a decided improvement, notwithstanding some little practical difficulty in their occasional application. Dr. Hamilton says nothing of the method of resorting to counter-extension from the other thigh, which is sometimes practised in this country, and is recommended in some cases by Fergusson and others abroad.

A plan entirely new to us, and probably undescribed hitherto, has been for some time past in operation at the Pennsylvania Hospital, in the hands of its contriver, Dr. H. Lenox Hodge, one of the resident surgeons. It consists in the application of a broad counter-extending adhesive strap to the front and back of the chest, near the shoulder, of the injured side; these straps are securely confined to the walls of the thorax, by three transverse strips so applied as not to constrict the chest and abdomen, and are then attached to a short and bent iron bar which extends from the upper extremity of the long outside splint, over the shoulder in such a manner as to bring the counter-extending force exactly in line with that of the extending bands below.[1] This application of the adhesive strip is certainly ingenious, and promises well. It is simple, comfortable, and effectual, so far as we can judge from the few cases in which it has been tried; and it may be recommended as an advantageous alternative in many cases, if not a general substitute, for Gilbert's method, as well as for all the older plans. There may be theoretical objections to the manner of making the counter-extension from the chest; but we doubt whether they will be sustained in practice, as there are some positive advantages, in the mode of fixing the trunk, attendant on its employment. We have no hesitation in preferring the maintenance of the extension and counter-extension in the same line, and therefore cannot agree with Dr. Gilbert in his somewhat plausible idea as to the advantage of the oblique over the straight direction for the counter-extending force.

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[1] See "American Intelligence" of this No. for a description by Dr. Hodge, with a wood-cut diagram and sketch. We are now attending a bad case of fracture of the neck of the femur, in which this arrangement has been thus far found to answer remarkably well, and have seen it applied with success in two other cases.

Before leaving this topic, we may as well remark that the use of the adhesive plaster in the treatment of fractures dates back more than forty years ago in Philadelphia, since it is known by former residents at the Pennsylvania Hospital, among whom we may mention Prof. H. L. Hodge, of the University of Pennsylvania, to have been frequently employed in the wards of that hospital, by the late Dr. Joseph Hartshorne, as the only dressing in fractures of the clavicle, and as a protective one to the groin, heel, and other parts, in fractures of the limbs. We remember assisting Dr. Hartshorne, in 1839, in this application of adhesive strips to a case of dislocated clavicle, at the acromial end, and were then told by him of his practice in fracture of the same bone.

So little time is left for the consideration of the second, and, if possible, more important and valuable part (on dislocations) of this treatise, that we pass very rapidly over the remaining pages on fractures.

These, like those of the preceding chapters, are very interesting and instructive, as well as suggestive. Fractures of the patella are carefully discussed, with the usual amount of reference to American experience. The dressing represented and described as the author's mode presents nothing novel in its features. The history and rationale of this fracture, and of its treatment, are not so satisfactory as in the chapter on the same subject by Malgaigne. The clamps of this able surgeon are not noticed, as we think they might as well have been, either in objection or approval; and we think one or two other forms of simple apparatus might have been exhibited, in addition to those of Wood and Lonsdale, and to the very old-fashioned specimen of Dorsey's splint, which is given as the type in common use. The method shown in Wood's apparatus was familiar to us in a simpler form, at least eighteen years ago, in the Pennsylvania Hospital (*Phil. Med. Exam.*, March, 1842, pp. 202–3), without being considered novel then.

We agree entirely with Dr. Hamilton in the opinion that too much confidence has been placed in the efficiency of "Dupuytren's splint" in fractured fibula. He believes, "indeed, that this splint ought generally to be preferred as a means of support and retention after this accident, and I have myself usually employed it; but I doubt whether it is able to accomplish more than a moiety of all that its illustrious inventor proposed." We have seen fractures followed by deformity, notwithstanding great care and the faithful resort to Dupuytren's expedient, and we have seen many others get well without any trouble in the ordinary fracture-box. We have seen a very bad fracture of the lower third of the fibula recover without deformity under treatment in Pott's position on the injured side, the leg and foot being maintained at rest in a narrow fracture-box, adapted to the part. This fracture-box was a somewhat rude form of the splint which Dr. Hamilton recommends in applying Pott's method to the treatment of fractures of the tibia and fibula, which he prefers, without meaning to make an arbitrary or invariable rule, in "probably nine-tenths of all simple fractures of the leg." In most cases this plan, whether for one or both bones, of treating fractures of the leg by the flexed position on the outside, may, doubtless, answer very well, and in some cases better than that of the ordinary position on the heel and calf, in splints or fracture-box, whether they be suspended or not. There are not many cases of painful or excoriated heel, however, that would not be manageable either by suspension or in bran, or with a bran or sand cushion. According to Mr. Skey, the position on the side, which was formerly common at St. Bartholomew's, has long been abandoned there in favour of the position on the calf, as more uncertain than the latter. Nor have we the dislike or distrust of the fracture-box which is expressed by Dr. Hamilton; in good hands it may be relied upon for the large majority of cases, especially in hospital practice; which is all that can be said in favour of any one form of dressing or plan of treatment.

We feel reluctant to approach the subject of dislocations, with which the second part is so ably and faithfully occupied, because we have not the time to treat it with the respect which is certainly its due, and because we dare not try the patience of our readers any further, after having taxed it so thoroughly in the previous pages.

The best that can be done, to give an idea of the manner in which our author views his task and its requirements, is to quote the following paragraphs on the general treatment of dislocations:—

> "Many dislocations may be reduced promptly by manipulation alone; which mode is always to be preferred when it will prove sufficient for the reasons that it is generally the least painful to the patient, and the least apt to inflict additional injury upon the muscles and ligaments.
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> "A person wholly unacquainted with anatomy or surgery may occasionally succeed in reducing a dislocated limb; indeed, it frequently happens that the patient himself, by mere accident in getting up or in lying down, accomplishes the reduction; and even in a very large majority of cases force and perseverance will finally succeed, by whomever they may be employed; but the observing student of surgery will soon discover the difference between accident and brute force on the one hand, and intelligent manipulation on the other. The charlatan bone-setter does not often allow himself to fail, unless the courage of his patient gives out, or he ignorantly supposes the reduction to be effected when it is not; but his success, achieved through great and unnecessary suffering, is often obtained, also, at the expense of the limb. While the surgeon, whose knowledge of anatomy enables him to understand in what direction the muscles are offering resistance, and through what ligaments the head of the bone must be guided, lifts the limb gently in his hands, and the bone seeks its socket promptly and without disturbance, as if it needed only the opportunity that it might demonstrate its willingness to return.
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> "We must understand not only what muscles and ligaments antagonize the reduction, if we would be most successful, but also what muscles, by being provoked to contraction, will themselves aid in the reduction. In short, to become expert bone-setters in the department of dislocations, one must possess a complete knowledge of the physiognomy or the external aspect of joints, acquired only by repeated and careful examinations, he must be familiar with the anatomy and functions of the muscles, he must understand thoroughly the ligaments, he must have experience, tact, and fertility of resource.
>
> "Without these qualifications he will do better never to undertake to treat dislocations, since he is constantly liable to mistake fractures for dislocations, and dislocations for fractures; he will submit a sprained wrist to violent extensions, under the conviction that the joint is displaced; he will mistake natural projections for deformities, and fail to recognize the real deformity when it actually exists; he will leave bones unreduced, fully believing that they are reduced; and he will, all in all, within a few years accomplish vastly more evil than he can ever do good. Let a man practise any other branch of surgery, if he will, without experience or scientific knowledge, but he must not attempt to reduce dislocated bones. The most learned and the most skilful we shall find falling into error, embarrassed by the uncertainty of the diagnosis, or successfully resisted by the power of the opposing agents; what, then, can be expected of those who are both ignorant and inexperienced, but failures and disasters?" (p. 493.)

It may be said, in a few words, that the particular luxations are methodically discussed in all their aspects of diagnosis, pathology, prognosis, and treatment, with unusual care and fulness, and in the same concise, although generally perspicuous style, which characterizes the other portions of the work. The various questions of theory and practice are richly illustrated with numerous American cases, many of which had been under the personal observation of the author. The chapter on dislocations of the spine is especially interesting in this respect. The various manipulating processes for different dislocations receive a full share of attention. The history of the mode of reducing dislocation of the thigh, in connection with the method and demonstrations of Reid, is very elaborately drawn up, as many of our readers are aware, from having already seen the substance of his remarks on the subject in the journals.

Viewing Dr. Hamilton's work once more, as a whole, there would seem to be a few matters of omission, an occasional want of regard for minuteness of detail, and, in some instances, rather indiscriminate quotations, by which authorities of little value and doubtful cases are cited on equal terms with others of a much higher class. There is little to find fault with, however, in comparison with what is entitled to high praise, and we sincerely congratulate the profession of the United States on the appearance of such a publication from one of their number. We have reason to be proud of it as an original work, both in a literary and scientific point of view, and to esteem it as a valuable guide in a most difficult and important branch of study and practice. On every account, therefore, we hope that it may soon be widely known abroad as an evidence of genuine progress on this side of the Atlantic, and further, that it may be still more widely known at home as an authoritative teacher from which every one may profitably learn, and as affording an example of honest, well-directed, and untiring industry in authorship which every surgeon may emulate. E. H.

ART. XVII.—*The Transactions of the American Medical Association.* Instituted 1847. Vol. XII. Philadelphia, 1859. 8vo. pp. 722.

THE articles comprised in this volume of the *Transactions of the American Medical Association*, are but few in number. By two of the standing committees, those on Medical Education, and on Medical Literature, no reports were made at the session of 1859, and of the long list of committees appointed at previous sessions for the investigation of special subjects, and to prepare histories of the meteorology, and epidemics of the several sections of the United States, from five, only, were reports received.

To insure the efficiency, and to increase the usefulness of the Association as a scientific body, some change seems to be required in the plan of its proceedings. The system now pursued of referring particular subjects for investigation to special committees of one member each, has been found by experience not to be well adapted to elicit a regular series of valuable communications in either of the departments of medical science. It is true that among the reports heretofore made to the Association by its special committees, there are several of a very high character. These reports, however, we suspect, are to be viewed rather as voluntary contributions from their respective authors—with whom the subjects embraced in them had been favourite specialities, upon the investigation of which their minds had been engaged for some time—than as immediate results of investigations originated and accomplished solely at the instance of the Association. It would be better, we are persuaded, were all the committees dispensed with, save, perhaps, the present standing committees, and such as occasionally shall be required for the investigation of any subject that may occur, of especial interest. We believe that the Association could rely, with entire confidence, upon the presentation of valuable voluntary contributions from its members, were its sessions so conducted as to afford sufficient time for the free discussion of the views set forth in such contributions; or were the rule adopted to refer them to suitable committees, to carefully examine them, and report upon their respective merits: no paper presented to the Association, at any of its sessions, being allowed to appear in the printed transactions unless the same has received the favourable verdict of a committee of reference.

How far the interest of the meetings of the Association will be augmented, and the value of its *Transactions* insured by the carrying out of the recommendation adopted at its last session, to divide it into sections, time alone must determine. It is the plan which is already adopted by nearly all other scientific associations, and from this fact we have a right to infer that it has been found to work well.

A concise, but very terse and pointed report on the subject of Criminal Abortion, investigated with a view to its general suppression, is presented by a committee of which Dr. Horatio R. Storer, of Massachusetts, was chairman.

The report denounces, in the most explicit terms, the procurement of abortion, as no trifling offence against public morality and decency—no mere misdemeanor—no unjustifiable risking of the life of a pregnant female for the attainment of some paramount good—but a crime of the most heinous character on the part of all concerned in it; being no less than a wanton and murderous destruction of a living human being; a deliberate taking away of life, justifiable in no instance by any defensible motive, nor counterbalanced by any possible benefit that can result from it under any supposable contingency; but, in all cases, a crime of the first magnitude, deserving of unmitigated detestation.

There can, certainly, be no surer evidence of the moral decadence of a community than the prevalence in its midst of criminal abortion, and the toleration of its acknowledged practitioners. That the crime has fearfully increased of late years in our own country, more especially in all of our larger cities, is shown by the clearest and most incontestable evidence. So venial an offence has the procurement of abortion come to be considered, and so readily obtained are the means for its accomplishment, that it is resorted to daily, not merely by such as would conceal, through its instrumentality, the results of illicit sexual intercourse, but by even the mothers of families, to relieve them from the suffering and confinement incident to childbirth, and from the care, the responsibility, and the expense that would be entailed upon them by a family of children.

The causes of this general demoralization are manifold. While, in many instances abortionism is the legitimate result of preceding sinfulness, from the consequences of which it is adopted as a means of escape; in not a few cases it is resorted to from motives based in utter selfishness—a selfishness so debasing and denaturalizing in its effects, as to render a female willing to sacrifice the fruit of her own womb, and to forego the pleasures—the sweet and holy sympathies of maternity, for no higher object than to administer to her personal ease and comfort; or to enable her to continue without hinderance or restraint in the path of folly.

In the report before us, three of the most important causes of the prevalence of criminal abortion are referred to, as those with which the medical profession have especially to do.

The first is a widespread ignorance of the true character of the crime.

A belief existing, even among mothers, that the fœtus is destitute of life previously to the so-called period of quickening.

The second cause is the popular belief that the medical profession is itself careless of fœtal life. That is, physicians, without being knowingly or intentionally accessary to the crime of criminal abortion, are supposed to be, at times, liable to omit the precautions or means adapted to prevent its occurrence.

The third cause is to be found in the defects of our laws—both common and statute—in their non-recognition of the actual and independent existence of the child before birth as a living being; in consequence of which, conviction for the crime of abortion is prevented in almost every instance. With a strange inconsistency, while the law fully acknowledges the existence of the fœtus in utero, in providing for its civil and pecuniary rights, it fails to recognize it personally and as criminally affected, denying to it any protection from attempts upon its life.

The evil and its leading causes being thus exposed, the duty incumbent upon every honest member of our profession is perfectly plain.

"If to want of knowledge on a medical point, the slaughter of countless children now steadily perpetrated in our midst, is to be attributed, it is our duty, as physicians, and as good and true men, both publicly and privately, and by every means in our power, to enlighten this ignorance.

"If we have ever been thought negligent of the sanctity of fœtal life, the means of correcting the error are before us. If we have ever been so indeed, there are materials, and there is good occasion for the establishment of an obstetric code, which rigorously kept to the standard of our attainments in knowledge, and generally accepted by the profession, would tend to prevent such unnecessary and unjustifiable destruction of human life.

"If the tenets of the law, here unscientific, unjust, inhuman, can be bettered—as citizens, and to the best of our ability, we should seek this end. If the evidence on this point is especially of a medical character, it is our duty to proffer our aid, and, in so important a matter to urge it. But if, as is also true, these great fundamental, and fatal defects of the law are owing to doctrinal errors of the profession in a former age, it devolves upon us, by every bond we hold sacred, by our reverence for the fathers in medicine, by our love for the race, and by our responsibility as accountable beings, to see these errors removed and their grievous results abated."

The report concludes with recommendation of the following resolutions for adoption by the Association :—

"*Resolved*, That while physicians have long been united in condemning the act of producing abortion, at every period of gestation, except as necessary for preserving the life of either mother or child, it has become the duty of the Association, in view of the prevalence and increasing frequency of the crime, publicly to enter an earnest and solemn protest against such unwarrantable destruction of human life.

"*Resolved*, That in pursuance of the grand and noble calling we profess, the saving of human lives, and of the sacred responsibilities thereby devolving upon us, the Association present this subject to the attention of the several legislative assemblies of the Union, with the prayer that the laws by which the crime of procuring abortion is attempted to be controlled may be revised, and that such other action may be taken in the premises as they in their wisdom may deem necessary.

"*Resolved*, That the Association request the zealous co-operation of the various State Medical Societies in pressing this subject upon the legislatures of their respective States, and that the President and Secretaries of the Association are hereby authorized to carry out, by memorial, these resolutions."

A most able report on the Medical Topography and Epidemics of California, is from the pen of Dr. Thomas M. Logan, of Sacramento. There are few places which, in respect to the etiology and pathology of disease, present so fruitful and interesting a field for observation, as does California. Remarkable in the configuration of its surface, in its geological conditions, in its varieties of climate, in the character, condition, pursuits and mode of life of the crowds who first flocked there to appropriate its golden treasures, as well as of those who constitute the bulk of its present population, it at the same time presents before our eyes the rapid transition stages which, in this country, occur "between the rudeness of first settlements, and the more refined condition of countries long subject to civilization."

The character of the climate of California, considered in a general manner, may, according to Dr. Logan, be designated as Asiatic. In the greater portion of the State, the temperature, during the summer season, rises in the afternoon, in consequence of the very slight amount of surface moisture and the absence of clouds, as high as it does in districts, on the Atlantic side, ten or twelve degrees further south, and sinks proportionately low during the night; rendering this portion of the twenty-four hours cool and chilly. The year is divided into two seasons—the one dry and the other rainy. The first embracing the months of October, November, December, January, February, March, April, and May; the highest amount of rain falling during the last winter, and first two spring months. The dry season prevails through the months of June, July, August and September, during which but a very slight amount if any rain occurs.

> "Although the thermometer," says Dr. L., "has been known to fall as low as 33° as late as the 10th of February, still, the leafing process generally commences during the first week of February, and is completed at a temperature not much exceeding that of the mean annual. The measure of heat increases very gradually from month to month; indeed, the same uniformity of temperature obtains throughout the meteorological seasons. In summer the greatest vicissitudes of temperature are found to occur. The commencement of autumn is quite similar to the beginning of spring in its mean of daily temperature. The earth remaining warmer than the atmosphere under the decline of temperature, activity is partially renewed, after the drought of summer, by the influence of the light early showers of October. The first frosts occur about the middle of November, and the decline into winter is prolonged until the latter part of December. Ice is seldom formed before the beginning of January, and then rarely remains unthawed for twenty-four consecutive hours."

In a general point of view the climate of California may be pronounced salutary. For those who are possessed of the ordinary comforts of life, and who observe the leading hygienic precautions, there are few locations in which a larger amount of health may be, with certainty, enjoyed. Autumnal fever prevails every year, and, occasionally, as in 1858, to a very great extent—but, usually, of so mild a character and so amenable to treatment, as seldom to terminate fatally.

The causes of disease have heretofore been, according to Dr. L., the combined influence of the peculiar meteorological and physical conditions of the country, modified by temperament. The varieties of disease—as cholera, diarrhœa, typhoid fever, etc.—formerly met with, being entirely referable to the mode of life—the bad hygienic condition of the earlier population. This is shown by the fact that the disappearance of these diseases have corresponded with the increase of the comforts of, and ameliorations generally in the conditions of, the community.

As in all other countries, malarial fever, almost unknown in the early period of its settlement, has developed itself in California with the increased cultivation of the soil, and the general advance of industry and civilization. In other portions of the United States, however, where the prevalence of autumnal fever has followed upon the changes induced by cultivation, it has been the result, usually, of the extermination of forests and the clearing off of the luxuriant primeval vegetation, in consequence of which land that had been previously shielded from the sun's rays, and of course saturated with moisture, has become exposed to their influence. In California, however, districts of country, almost destitute of trees, and naturally arid, have been rendered moist and malarious, in consequence of the copious distribution of water for mining and agricultural purposes.

"From the study of medical topography with reference to autumnal fever in the great Mississippi Valley," we quote from the report before us, "we find, according to Dr. Drake, that it is a safe generalization to conclude that, all other circumstances being equal, fever prevails most where the amount of organic matter is greatest, and least where it is least. In valleys, where it is washed down from the hills, and deposited with the debris of rocks, this substance rapidly augments itself by promoting more luxuriant crops of vegetation. Whereas, in the pine lands of our Southern Atlantic States, it is small in quantity from the sandiness of the surface, just as it is in our desert lands, where the fever is unknown.

"Now, with respect to the Sacramento Valley, we find the amount of organic matter very different in different parts; for its production depends on the fertility of the soil, and on the temperature and moisture. Where these elements are all present, as in the neighbourhood of our rivers, sloughs, and overflowed lands, and their agency is not counteracted by a growth of tulé or other vegetation—there we always find more or less of fever every year; indeed, it is an endemic of such localities. Especially do we find the disease most constant along those river courses, whose turbid waters, being confined in the dry season within narrow bounds, leave a great part of their channels uncovered, and thus expose an immense amount of deposit brought down from the washings of the auriferous soil—as the Yuba, the Feather, and the American rivers and their tributaries. There are, however, regions of our valley where the loose upper stratum consists chiefly of the debris of rocks beneath, or of the deposits of the debris of other rocks spread over the surface by ancient inundations, and likewise tracts in which the rocks themselves appear at the surface, and from the general declivity of the land, the organic matters are washed off by the rains of winter, into the innumerable ravines and channels of creeks and rivers with which the face of the country is diversified, and which becoming dried up in summer, the whole region has remained perfectly healthy. Since, however, the introduction of water for mining purposes—the digging of ditches, the building of dams, and the establishment of large reservoirs—we find these very regions subjected to the disease; and this, too, we find to be in perfect accordance with all that has been observed in every part of the globe where intermittents prevail. For it appears necessary to the production of the efficient cause, be it malaria or whatever we please to term it, that there should be a surface capable of absorbing moisture, and this surface should be flooded and soaked with water, and then dried; and the higher the temperature, and the quicker the drying process, the more powerful—more probably because more plentiful—is the effect. Hence the conclusion is legitimate, that decaying organic matter brought and deposited in various directions, in a condition and under circumstances most favourable to decomposition, has been instrumental in occasioning the late epidemic (that of 1858) in California. As to the mode in which this decaying organic matter co-operates with the other essentially necessary conditions, heat and moisture, in the production of the morbific effect, we have no positive knowledge, nor would the discussion of the various hypotheses that have been framed in relation thereto, inure to any practical good. It may supply the material out of which a poisonous gas is formed, as maintained by some, or it may prove a nidus or hot-bed for animalcules, or vegetable germs, according to the theories of others. In either case, we know the conditions that are necessary to give it efficiency. As long as these conditions coexist, certain effects are produced; interrupt, counteract their coefficiency, and the probability is we may never afterward hear of such another wide-spread epidemic as (that of 1858) we have been studying in its etiology."

In the course of the history given in the report before us of the epidemic of intermittent fever which, in the autumn of 1858, prevailed so extensively throughout California, Dr. Logan presents some judicious remarks in relation to the character and management of the disease, which will apply equally to malarial fevers generally, wherever these prevail annually as wide-spread endemics. There is nothing, it is true, in the remarks of Dr. L. that can be considered as particularly novel; they reveal no new facts in reference to the pathology of these affections; no development of any new therapeutical plan or means for their treatment; they, however, recall attention to principles and rules of practice that had become in a great measure forgotten, if not entirely ignored.

We pass by the report which follows, "On a Uniform Plan for Registration Reports of Births, Marriages, and Deaths," by Dr. W. L. Sutton, of Kentucky, as we have already one which occurs previously, "On Government Meteorological Reports," prepared by Dr. Richard H. Coolidge; not because of any want of interest or of value in these reports, but from the impossibility of presenting any satisfactory summary of either of them. The views presented in both appear to us judicious, and adapted, if carried out, to secure a valuable series of statistics. We would press the report of Dr. Sutton more especially upon the attention of the members of the profession generally. They having the power within their own hands of inaugurating in every portion of the United States a registration of births, marriages, and deaths, in accordance with the plan recommended by its author.

The next report in order is "On the Topography and Epidemic Diseases of Michigan." It is from the pen of Dr. J. H. Beech.

In respect to its medical topography, Dr. B. divides the State of Michigan into three sections. The first embracing the northern peninsula. This district has a climate whose salubrity renders it an admirable resort for that class of invalids in whom the depressing influences of heat and humidity have so far deranged the digestive and assimilative organs, as to lay them open to the attacks of acute disease when they remain exposed to the annual changes which occur in the lower latitudes and inferior altitudes. The dryness of the atmosphere in this district has been noticed by every observer. Malaria is there unknown, and the summer solstice never brings with it its enervating blight. The only epidemic visitation experienced by the white inhabitants, of which Dr. B. has obtained information, was that of typhus fever, which, according to the statements of Dr. Pitcher, prevailed at Fort Brady, in the years 1826 and 1827.

The second of the three sections referred to by Dr. B. includes that portion of the southern peninsula of Michigan which lies north of the valley of Au Sable and the Manistee River. This section, we are told, is but little inferior to the former in point of salubrity. The atmosphere is usually dry, while the temperature is not high, excepting under the direct rays of nearly the mid-day sun. The character of the diseases which occur in this second section, and the season of their greatest prevalence, correspond in some degree with those of the distinctly malarious regions. Aside from the charms of the scenery about Lake Superior, and the conveniences of sojourn, it is very probable, Dr. B. remarks, that it is a more desirable residence for invalids than the northern peninsula.

The third section, according to the division suggested by the reporter, comprises the middle and southern portions of the State. It borders closely upon the epidemic zone, although still beyond the range of the more destructive of the epidemic maladies.

"A rich alluvial soil, a large portion of which is deeply covered with an exceedingly porous vegetable mould, and watered or drained by streams but slightly below the general level of the country, affords unquestionably sources of humidity at temperatures in summer, which favour decomposition less rapid, it is true, but equally certain as in the torrid zone."

"Scarcely a stream exists in the southern portion of the State, which does not in every few miles of its course widen into a lakelet of several hundred acres, skirted on one or more sides by savannas which might diversify and adorn the landscape without noxious influence, if properly cleared and drained; but which too frequently have been inundated by a mill-dam at the *debouche*, converting the semi-aquatic trees and grasses into vast rotten quagmires, to be left uncovered and seethe in the summer's sun, germinating diseases, like Python of Egyptian fable, to encircle its sallow victims in folds of endemics and epidemics."

We have already mentioned the endemics of typhus fever described by Dr. Pitcher as occurring at Fort Brady in the years 1826 and 1827.

"In these two epidemics there were most dissimilar atmospheric conditions. The first visited a section proverbially healthy, intensely cold weather prevailing, and neither want nor other depressing causes being known, nor any possibility of importation. The latter in a humid locality, in a hot summer, and among a portion of population imperfectly cared for, in a city whose accommodations were certainly not at that time above the demands of necessity."

Dr. Bailey describes an epidemic of a typhoid character, which prevailed chiefly among children, in Lapeer County, in 1841, and another which prevailed among the population generally throughout the middle and southern portions of the State in the year 1848. A similar fever is noticed by Dr. Peyry, of Washtenaw County, as having prevailed in Northfield and Saline during the spring of 1855. In various other parts of the State typhoid fever is described as having occurred in different years under certain anomalous forms. The description furnished us of the general characteristics presented by the fever, as it appeared in these epidemic visitations, would lead us to suspect that the disease described as typhus fever was, in some of them at least, the affection known as cerebro-spinal meningitis. That it bore all features of the latter, in certain localities, is admitted by Dr. Peyry in his account of the epidemic observed by him.

Dr. Bailey notices a severe and fatal epidemic that prevailed in different portions of the State during the early period of 1848, but especially in Almont and Detroit.

"The winter," he says, "was an 'open one,' there being a thaw every fourteen days, when what little snow had fallen would melt off, leaving the ground wet. As soon as the wind commenced blowing from the south every one would begin to complain of chilliness. On exposure to the wind, a sense of coldness would pervade the whole body, attended with a peculiar sensation in the nape of the neck, producing an inclination to draw the head back. A person would feel, only to a greater degree, all the symptoms usually called 'aguish.' Attending this coldness was a cool, clammy sweat, especially on the lower limbs, and severe pains from the knees down."

If nothing was done to remedy this state of things, within twenty-four hours a severe pain began to be felt in some part of the body, generally in a joint—as of the great toe, the knee, the hip, etc.—which was soon followed by intense headache, great coldness of surface, redness of eyes, rigors, and other indications of great depression. The pulse became sluggish, and slower than natural—it was rather full in some cases, but always easily compressed; the tongue was pale or of a leaden hue, and spongy or flabby, but seldom coated. In most cases reaction took place within a few hours. Occasionally the patient would sink into a comatose state, and die under all the appearances of compression of the brain. The amount of febrile excitement which succeeded the cold stage was proportionate to the intensity of the latter. It usually passed off in a few hours with a profuse sweat, leaving the patient free from pain, but much debilitated. If the course of the disease was still uninterfered with by remedial measures, after from twelve to twenty-four hours another chill would occur, and be succeeded by reaction as before, attended with delirium and other more severe symptoms than the previous exacerbation. This would go off with perspiration; and if the proper remedies were still withheld, a third paroxysm would occur at an interval six hours less than the first. With few exceptions, death took place upon the occurrence of this third paroxysm.

In many cases the symptoms of the first paroxysm were so slight as to induce the patient to consider them of trifling importance, no uneasiness being experienced by him until upon the occurrence of a second paroxysm. During the latter, delirium and all the phenomena observed in cases of congestion of the brain would usually supervene, such as dilatation of the pupils, strabismus, convulsions, and in some cases a firm contraction of the muscles of the spine and those on the posterior portion of the lower limbs, causing the body to become bent backwards in the form of an arch, the occiput and heels alone touching the bed as the patient lay upon his back. Occasionally the spasmodic symptoms resembled those of chorea or of opisthotonos. After a third paroxysm, uniformly, the congestive symptoms became permanent, or only interrupted occasionally by an exacerbation of the convulsive phenomena, occurring at some particular portion of the twenty-four hours, usually at night. There was little derangement detected of the stomach or the other assimilative organs on the first attack of the disease; subsequently, however, constipation set in, with scantiness of urine and of the other secretions. Puerperal females, we are told, were especially liable to be attacked by the epidemic during the winter season. The initial chill was generally experienced about the third day after confinement. So common an occurrence is a more or less decided chill at this period, when the secretion of milk commences, that at first its serious import was overlooked, and, the true character of the case not being understood, a second chill would be allowed to ensue, accompanied by all the formidable phenomena indicative of cerebral disease.

The degree of severity, both in the attack and subsequent symptoms, varied in different cases, according to the age, sex, temperament, and previous habits of the patient. The disease attacked most usually individuals of adult age, of the male sex, and who were exposed to vicissitudes of weather, and of irregular habits.

Examination after death revealed effusion into the ventricles of the brain, with pus in the points where the extravasation first took place, which was at the base of the brain, but generally lying upon the cerebellum at different places. Dr. B. states that it was impossible, in any case he examined, to determine the exact spot where the lesion occurred. The spinal cord does not appear to have been examined.

When cases of the disease came early under treatment, they yielded readily to simple remedies. Usually the patient was covered up in bed, with sinapisms to the ankles, calves of the legs, and inside of the thighs. Hot bricks wrapped in wet cloths were applied around different parts of the body, particularly of those places where severe pain was experienced, and bladders containing snow or powdered ice upon the head and back of the neck. As soon as the extremities became warm, and the circulation equalized, the patient would experience relief, and commence to sweat. Quinine, combined with opium, capsicum, or other remedy indicated by the particular symptoms and circumstances of each case, was given to the extent of from thirty to sixty grains, in doses of from five to ten grains every two or three hours, until the period of the night paroxysm had passed. In cases attended with collapse, brandy and other stimulants were required to be given freely. It was generally found advisable to apply warmth to the extremities, and employ other means to prevent a second attack, half an hour or more before it is expected to occur. When alteratives were indicated, they were combined with the antiperiodic remedies, or withheld until the paroxysms were suspended. In most cases, during the first thirty-six or forty-eight hours the tongue was clean and pale, and no vomiting or other derangement of stomach was observed; but subsequently, in some cases, the tongue would become coated, or red and dry, when the case was treated on general therapeutic principles.

> "It was a common thing," says Dr. B., "to meet people in the street complaining of the peculiar coldness and pain in the neck above mentioned, and in such cases we were in the habit of prescribing quinine, thirty grains, divided into six doses, combined with capsicum or piperine, one to be taken every two hours, with as much brandy as could be borne without affecting the head—and it was astonishing how much could be taken without producing intoxication.
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> "Bleeding was tried in two cases attended with congestion of the brain, but with bad rather than good effect. The only hope of saving the life of the patient was to get the disease under control before the occurrence of the second paroxysm."

The State of Michigan has always sustained a high reputation—and, Dr. B. is convinced, deservedly so—as a residence for such as possess a decided predisposition to phthisis pulmonalis. It has been repeatedly remarked, and the truth of the observation is confirmed by the experience of Dr. B., that individuals from the Eastern and Middle States, of marked hereditary or acquired tuberculous diathesis, usually resist the encroachments of the malady while residing in Michigan to a much greater degree than before immigration, or than members of their own families who remain at home. They would appear also less liable to transmit the tuberculous taint to their offspring.

> "With full conviction," remarks Dr. B., "of the general correctness of the conclusions of Dr. Drake, in his work on 'the Diseases of the Interior Valley of North America,' we have not found his opinions in regard to the effect of colder regions upon consumptives, substantiated by the reports of invalids, except where the effect of purulent absorption, or other depressing influences, were diminished for a time, through the additional vigor given to the circulation by a journey, and the early periods of sojourn in Lake Superior regions. Tuberculous patients returning to the southern portions of the State from there, appear to have declined rapidly after the excitement of new scenes had passed; and, although the dryness of the atmosphere would render insensible, and undoubtedly diminish the perspiration which had bathed the skin in more humid climates, and the appetite generally improves, still the cough often became more irritating, and pleuritic pains more troublesome, sometimes demanding a hasty retreat."

The fact of the extreme infrequency of pulmonary tuberculosis, indeed of tuberculosis generally, among the inhabitants of cold, dry, equable climates, is incontestably established by a series of the most reliable statistics collected by different observers, within the past few years, and many striking and well-authenticated facts would even seem to indicate that, in individuals who are strongly predisposed to tuberculosis, a residence in a climate as we have just described, will so far ward off the occurrence of pulmonary consumption as to enable them to pursue without impediment any active occupation, their lives being extended to the ordinary limits of human existence. But we have no reason for supposing that a cold climate, however dry and equable, would prove a proper one for patients who are actually labouring under pulmonary consumption. With the views we entertain in respect to the pathology of pulmonary consumption, we should anticipate that an increase rather than a diminution of the disease would be caused by the removal of the patient in whom it had already developed itself from a mild, warm, or even hot climate, into a cold, although equable and dry climate, though we believe that the evil influence of such a climate would be far less than that of a cold, damp, variable one.

The only paper which remains to be noticed is one by Dr. Joseph Jones, of the Medical College of Georgia, entitled, "Observations on some of the Physical, Chemical, Physiological, and Pathological Phenomena of Malarial Fever." It is a production of very large pretensions, extending over a wide, almost limitless field of inquiry; and occupying upwards of four hundred pages of the present volume of *Transactions*.

It would be impossible, even if we were inclined to enter upon the task, to do justice to a theme so vast as that discussed by Dr. Jones, in a review or analysis of any reasonable limits. His first chapter, alone, which treats of the relation of man to the exterior universe—the relations of astronomical, terrestrial, physical, chemical, and physiological phenomena, and the character and extent of physiological and pathological investigations established by the relations of man to the exterior universe, opens out before us a field of inquiry so extensive, and intricate, that even a superficial glance at its leading propositions, and the facts and reasoning upon which they are based, would extend our notice far beyond all reasonable limits.

The essay of Dr. Jones is unquestionably, upon the whole, a very able and instructive one. Some few of the general propositions of the author can be viewed, it is true, in no other light than as mere truisms, dressed up in a somewhat new phraseology, and most diffusively set forth; while others are but of doubtful accuracy, and several are expressed in terms too loose and indefinite to convey any clear and positive idea.

The foregoing remarks apply more especially to the general matter contained in the first three chapters. Those portions of the essay which treat of the changes the blood undergoes in malarial fever—the pathological anatomy of the several types of this disease—the comparison of the morbid changes detected after death, with the phenomena presented by the disease during the life of the patient, with similar changes in other maladies, and with the condition of the diseased organs, tissues, and apparatus in the normal state, are marked by a closer process of reasoning; the conclusions being sustained, also, by a series of more pertinent, positive, and definite observations. In the elucidation of the important questions embraced in the three concluding chapters of the essay, it must be confessed that Dr. Jones has exhibited no common ability, and not a little research; every portion of these chapters is marked by extended and careful observation, and, in most instances, by a spirit of cautious induction. They are throughout most interesting and instructive. Although we cannot give assent to the accuracy of all the premises assumed by the author, nor to the entire legitimacy of all his conclusions, yet we feel very confident that no one can rise from the attentive study of the essay without having acquired a better knowledge of the pathology, generally speaking, of malarial fever than he before possessed.

We shall not pretend to offer an analysis of the several premises which Dr. J. believes that he has established, nor can we attempt to follow him in the course of reasoning by which he is led to the pathological conclusions he advocates. The utmost we can do is to present a general summary of the more prominent of his leading conclusions, and as far as possible in his own words.

In relation to the changes the blood undergoes in malarial fever, Dr. J. believes that the observations he has adduced prove its coloured corpuscles, together with its albumen, to be diminished, whilst the extractive matters of the serum are increased, and that the extent and rapidity of these changes correspond with the severity and extent of the disease. The destruction of the coloured blood-corpuscles being more uniformly observed and more rapidly accomplished in malarial fever than in any other acute affection. The destruction is effected mainly in the liver and spleen. The fixed saline constituents of the blood-corpuscles, also, are shown, according to Dr. J., by the same series of observations, to be often diminished in malarial fever. The alteration and destruction of the coloured blood-corpuscles are invariably attended, Dr. J. affirms, by aberrated muscular and nervous action.

The destruction of its coloured corpuscles is not the only change the blood undergoes in the liver; Dr. J. has found that during malarial fever animal starch accumulates in that organ, whilst there is at the same time an absence of grape sugar.

In malarial fevers, and in fever generally, he remarks, the fibrin of the blood is rarely increased. It either remains within its normal limits, or is diminished in quantity. So far as his observations extend, the amount of the diminution of the fibrin corresponds with the severity of the disease.

These changes in the blood, and the resulting modifications in the constitution of the solids, Dr. J. believes to take place in those who have been subjected to the morbific influence of the malarial poison, before any of the phenomena constituting the disease termed fever have developed themselves—to a sufficient extent to attract attention—constituting what he denominates the malarial cachexy. He denies that, in malarial fever, the cerebro-spinal system is the seat of irritation or of inflammation, provided these terms be limited to the meaning commonly adopted; but that when irritation and inflammation of the cerebro-spinal system do occur in the progress of the fevers referred to, they are strictly accidental phenomena, and by no means dependent upon the definite and uniform action of the malarial poison.

The following is the rationale, according to Dr. J., of the phenomena which constitute a paroxysm of malarial fever as exhibited in its most common and regular form, that of an intermittent:—

> "The poison, as we have demonstrated in the chapter on the blood, first alters the constitution of the blood, and interferes with the actions and secretions of those organs which elaborate the blood, before producing any perceptible changes in the phenomena of either the sympathetic or cerebro-spinal systems, this alteration of the blood progresses until a point is reached, where either such compounds are generated in the cycle of chemical changes, induced by the malarial

> poison, or the constituents of the blood, especially the coloured blood-corpuscles and fibrin, become so altered that disturbances are produced in the chemical changes by which the capillary circulation is maintained, and as a necessary consequence, the action of the heart, which depends as all other muscular actions do, upon the chemical changes in the capillaries, is impeded, and the blood generally stagnates in the capillaries, and accumulates in the large bloodvessels of the trunk and internal organs, and the temperature of the extremities, due to the chemical changes of the blood in the capillaries and the surrounding tissues, sinks far below the normal standard; this arrest of the capillary circulation in the extremities, and probably also, in the lungs, is attended by the retention of the products of excretion, as carbonic acid, and the matters thrown off from the skin and kidneys; these excrementitious offending matters, together with the products resulting from the perverted chemical changes, due in part to the reduction of the temperature of the extremities many degrees below the normal standard, stimulate the sympathetic and cerebro-spinal nervous system; the sensation of cold is felt, attended by twitching and jumping of the muscles, entirely beyond the control of the will, because they are due to aberrated muscular and nervous action, arising from disturbances in the capillary circulation, and from the action of the perverted elements of the blood, the respiration is aroused, more oxygen is introduced, and the temperature of the trunk elevated, provided the alterations in the constitution of the blood have not proceeded too far, or the nervous system been so overwhelmed, either by the action of the altered products, or of the malarial poison, that they cannot respond to the excitation produced by the altered and retained productions; the elevation of the temperature of the trunk is attended by more rapid circulation of the blood in the capillaries of the heart and of the nervous centres, and consequently by a more rapid and powerful action of the heart and generation of nervous force, the oxygen is introduced and distributed with greater rapidity, the chemical changes in the capillaries are again excited, the capillary circulation is first restored in the trunk, and then in the extremities, the elevation of temperature becomes general, and we have the phenomena called fever."

During the active chemical changes of fever, the malarial poison and the altered products of the blood are drawn into the round of chemical change, physically and chemically altered, and are finally thrown off from the lungs, skin, kidneys, and intestinal canal. After the removal of these offending products, the excitants of the sympathetic and cerebro-spinal system, after the system has been purified, as if by fire, then the nervous system returns back to the normal exercise of its functions; the force and frequency of the heart diminish; the panting, full respiration subsides into the calm regularity of health; the temperature, both in the trunk and in the extremities, returns to the normal standard, and we have what is called the remission of fever.

> "If remedies have been applied which effect the permanent alteration, and destruction, and removal of the malarial poison, there is no return of the chill, succeeded by fever. If, on the other hand, the poison has not thus been removed, the same round of phenomena is repeated, the blood is again altered, the capillary circulation is again retarded, and the whole round of phenomena are repeated."

The changes that take place in the colour of the liver during malarial fever, is referred, by Dr. J., to changes in the amount and physical and chemical constitution of the blood in the capillaries of the organ, and to the physical and chemical changes in the bile, and the contents of the secretory apparatus.

Alterations of the spleen are laid down by Dr. J. as among the very first of the pathological effects of the malarial poison, and previously to the development of the phenomena constituting the febrile paroxysm. The alterations consist chiefly in the engorgement of the spleen with blood, the softening of its texture, and rupture, in many places, of the trabeculæ.

The following propositions are laid down by Dr. J. in reference to certain phenomena characteristic of the several forms of malarial fever.

"I. During the cold stage (*chill*) there is a rapid, feeble pulse, full, rapid respiration, and a hot trunk and cold extremities.

"II. During the cold stage. the temperature of the extremities is reduced far below that of the trunk, and even below the standard of health, because the circulation of the blood in the bloodvessels and capillaries is feeble.

"III. The diminution of the capillary circulation and reduction of the temperature of the extremities, precede the aberrated nervous and muscular phenomena denominated chill.

"IV. The higher the temperature of the trunk during the cold stage, the more rapid will be the equalization of the circulation and temperature.

"V. The higher the temperature of the trunk during the cold stage (stage of equalization of the circulation and chemical action), the milder and shorter will be the attack as a general rule, provided there be no complication, as congestion of the brain.

"VI. In malarial fever there is a close relation between the state of the skin, pulse, respiration, and temperature of the extremities and trunk.

"VII. The phenomena of the cold stage, preceding the hot stage of *remittent* fever, are similar to those of the cold stage of intermittent fever.

"VIII. The most important difference between the cold stage of *remittent*, and that of *intermittent* fever, is a difference of degree and not of kind, the phenomena of the cold stage of *remittent* fever, are more protracted than those of *intermittent* fever, the sympathetic system is not so rapidly aroused, and the circulation in the capillaries of the extremities is not so rapidly restored in *remittent* as in *intermittent* fever.

"IX. In *remittent* as in *intermittent* fever, the increase of the action of the pulse and respiration is attended by an elevation of temperature, and the elevation of temperature corresponds more accurately with the increased actions of the circulatory and respiratory systems in *intermittent* than in *remittent* fever—that is, the pulse and respiration are more accelerated in *remittent* fever, whilst the temperature does not rise higher than that of *intermittent* fever.

"X. The elevation of the temperature is more persistent in *remittent* than in *intermittent* fever.

"XI. The pain upon pressure of the epigastrium is more acute, and the vomiting more obstinate, and the cerebral symptoms more common and dangerous, in *remittent* than in *intermittent* fever.

"XII. The secretions of the mouth are more completely checked, and the tongue is drier, redder, and rougher to the feeling, in *remittent* than in *intermittent* fever.

"XIII. The glowing tongue of *remittent* fever is not an index of inflammation.

"XIV. The secretions of the salivary glands and mucous membrane of the mouth, are not only more diminished, but they are also more perverted in *remittent* than in *intermittent* fever. The acidity of the saliva is greatest in *remittent* fever.

"XV. The coma, delirium, and severe pain in the head, so often present in the severe cases of *remittent* fever, are, as a general rule, not indicative of inflammation of the brain, but of the stagnation of the blood and perversion of the chemical changes in the capillaries of the brain. and of the action of the altered blood upon the nervous elements, and of the direct action of the malarial poison upon the nervous structures.

"XVI. The changes of the urine in *remittent* fever are the same in kind, but different in degree from those of *intermittent* fever.

"XVII. The malarial poison may produce such profound alterations in the blood, and such profound impressions upon the sympathetic and cerebro-spinal systems, and upon the fibres of the heart, that both the capillary circulation and the general circulation will be greatly deranged, the chemical changes in the capillaries and organs from which the nervous and muscular forces are developed arrested, and the temperature of the trunk diminished.

"XVIII. The malarial poison may produce such derangements in the blood and its containing vessels that fibrinous coagula will be formed in the heart and large bloodvessels, and produce suddenly and without previous warning the phenomena denominated congestive.

"XIX. The action of drastic purgatives, or of an emetic, or profuse bloodletting, may act in conjunction with the malarial poison, and induce phenomena denominated congestive, pernicious, or malignant.

"XX. There is always a want of co-ordination between the actions of the circulation and respiration and animal temperature in congestive fever.

"XXI. The phenomena of congestive fever differ from those of the cold stage of intermittent and remittent fever in the want of elevation of the temperature of the trunk.

"XXII. The phenomena of congestive fever are due to depression of the fever, and not to excitation, and should be treated accordingly."

As a general rule, Dr. J. has found the uric acid of the urine to be either normal in amount or diminished in the active stages of malarial fever, and that the amount increases during convalescence.

The chemical pathology upon which Dr. J. bases his theory of the action of the malarial poison on the animal organism, and in the production of periodical fevers, is extremely attractive from its simplicity and the apparently easy and consistent explanation it gives of the efforts of the vital forces of the system to restore to the blood and to the solids their normal condition, and through these to the sympathetic and cerebro-spinal system its healthful functions. It still remains to be proved, however, that the first act of the malarial poison is the production of "chemical changes in the elements of the blood and organs different from the chemical changes of health," and that the abnormal condition of the fluids and solids of the body, thus induced, by stimulating the sympathetic and cerebro-spinal system, arouses those functions to increased energy, which, by their action, are adapted to bring about again the normal chemical changes of the living organism, and to cause a modification of, and the elimination from the body of the malarial poison itself, and of the abnormal products of the blood which had been produced by its presence.

Dr. J. admits that his series of observations on the subject of malarial fever, notwithstanding they have cost him three years' labor and study, based upon the careful observation of more than three hundred cases of the several forms of malarial fever, as they are met with in different portions of the State of Georgia, are incomplete; he claims for them, in fact, no higher character than as mere beginnings in the right direction; and in this light we have no objection to accord to them a most favourable reception, joining, at the same time, earnestly in the hope expressed by the author that the entire series of observations, and the statements, relations, and laws deduced from them, may be tested by careful, conscientious observers, in order that the errors they may be found to contain may be eliminated, their imperfections removed, the results to which they legitimately lead enlarged, and, in this manner, "the positive knowledge of the phenomena of malarial fever, and of all fevers, established by observation, experiment, and reason." D. F. C.

BIBLIOGRAPHICAL NOTICES.

Art. XVIII. *Reports of American Institutions for the Insane.*

1. *Of the Maine Insane Hospital, for the year* 1859.
2. *Of the Vermont Asylum, for the fiscal year* 1858–9.
3. *Of the Massachusetts State Hospital, Worcester; fiscal year* 1858–9.
4. *Of the Massachusetts State Hospital, Taunton; fiscal year* 1858–9.
5. *Of the Massachusetts State Hospital, Northampton; fiscal year* 1858–9.
6. *Of the Butler Hospital, for the year* 1859.
7. *Of the State Hospital, Pennsylvania, for the year* 1859.
8. *Of the Western Pennsylvania Hospital, for the year* 1859.
9. *Of the Western Asylum, Virginia; fiscal years* 1857–8, *and* 1858–9.

1. The operations of the *Maine Insane Hospital* for the year terminating with the 30th of November, 1859, furnish the following results:—

	Men.	Women.	Total.
Patients at the beginning of the year	117	91	208
Admitted in course of the year	81	68	149
Whole number	198	159	357
Discharged, including deaths	71	49	120
Remaining at the end of the year	127[1]	110[1]	237
Of those discharged, there were cured	38	20	58
Died	12	5	17

Died of phthisis pulmonalis, 7; chronic mania and old age, 2; dysentery, 2; exhaustion following acute mania, 1; marasmus, 1; epilepsy, 1; serous apoplexy, 1; dropsy, 1; *paralysie générale*, 1.

The number of patients has exceeded that of any former year, and never has there been a greater immunity from illness or serious accidents. The hospital has been in operation more than nineteen years, and the number of patients received is 2,127. Of these, 871 have been discharged recovered, and 267 have died. Only two suicides have occurred among this mass of upwards of two thousand patients—an exemption from casualties of this kind as gratifying as it is remarkable. "The last death by suicide was in the spring of 1845, since which there have been 190 patients whose symptoms were decidedly suicidal, and many of whom attempted the act at several different times."

The number of patients in the course of the year has gradually increased from 129 in 1840–41, to 357 in 1858–59. The male department is now crowded, and that of the females nearly full. Under these circumstances, Dr. Harlow says, "some immediate action should be had, either to enlarge the present building, or to erect a new hospital in some other section of the State." He recommends the latter, alleging the sufficient reasons, "two hundred and fifty diseased persons, congregated together, are as many as one man ought to have in charge. Every superintendent should know each patient and see him daily, which he could not do if the number was much greater." As another argument in favour of increased hospital provisions, he asserts that "there are, at this time, a large number of insane persons confined at the various almshouses in our State, many of whom are chained or caged, and in the most loathsome condition. Benevolent and sympathizing humanity calls for their release."

The patients' library of this hospital is one of the most extensive and valuable of its kind in the country. It contains upwards of two thousand volumes. Thirty newspapers are sent to the hospital gratuitously.

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[1] The report says 129 and 108; but those are not the numbers deduced from the preceding figures. We cannot, of course, tell where the error lies.

Among the improvements of the year are the erection of a new barn, 80 feet by 42, and the introduction of gas for the lighting of the hospital. "An increased quietness is distinctly observed among the patients, since the introduction of this new light."

2. The statistics of the *Vermont Asylum for the Insane*, for the fiscal year ending August 1, 1859, are as follows:—

	Men.	Women.	Total.
Patients at the beginning of the year . . .	207	208	415
Admitted in the course of the year	80	76	156
Whole number	287	284	571
Discharged, including deaths	75	65	140
Remaining at the close of the year	212	219	431
Of those discharged, there were cured . .			67
Died			40

Since the asylum was opened, 3,025 patients have been received, and 1,433 discharged recovered. The whole number of deaths is not mentioned.

After portraying the injurious effects, upon curable patients, of visits from their relatives and friends, Dr. Rockwell makes some exceptions to the general rule. "Occasionally," says he, "there is a case wherein the patient seriously believes that some of his dearest friends are dead, or that he is guilty of some heinous misconduct. In such instances, and at a proper time, an interview with his friend may correct these mistakes, and prove beneficial. In such cases we never fail to advise the friends, and encourage a visit from them."

In reference to the means of furnishing manual labour to the patients, it is stated that the workshop has been enlarged, and that there is "a considerable number of mechanics who are agreeably and profitably employed in the business they had been accustomed to before they were insane. * * * They not only perform much useful labour for the asylum, but also execute some curious workmanship for the entertainment of themselves and others."

A new barn has been erected, and gas introduced for lighting the building, during the past year.

3. The general features of the medical history of the *Massachusetts State Lunatic Hospital*, at Worcester, for the official year ending with the 30th of September, 1859, are presented in the subjoined table:—

	Men.	Women.	Total.
Patients at the beginning of the year . .	141	160	301
Admitted in course of the year	106	94	200
Whole number	247	254	501
Discharged, including deaths	95	89	184
Remaining at the close of the year . . .	152	165	317
Of those discharged, there were cured . .	43	46	89
Died	20	10	30

Causes of Death.—Epilepsy, 6; consumption, 5; marasmus, 4; palsy, 4; exhaustion, 3; old age, 2; apoplexy, asthma, pulmonary gangrene, maniacal exhaustion, suicide, and typhomania, 1 each.

As will be perceived, "two patients only have died during the year from any form of acute disease. They were females, and suffering from attacks of recent mania. Both were brought to the hospital in an exhausted condition, and died in two weeks after admission."

Of the 200 patients admitted, 7 men and 13 women had suicidal mania, and 4 men and 3 women homicidal mania.

Since the opening of the hospital, January 18, 1833, the number of patients received is 5,976—men, 2,933; women, 3,043. Discharged, cured, 2,747—men, 1,307; women, 1,440. Died, 696—men, 356; women, 340.

As a matter of psychological interest we extract a description of the delusions of some of the patients admitted in the course of the last year. It is to be regretted that Dr. Bemis has not informed us in what manner he treats such patients as the one first mentioned, and the one who believes himself to be Napoleon the Great. Does he recognize these imaginary titles, and address the patients by them, or permit the attendants so to address them? or, on the contrary, does he, when circumstances require any allusion to the subject, treat those titles as delusions, and persist in addressing the patients by their appropriate names? We conscientiously believe that the physician who pursues the former course becomes himself in part responsible for the persistence of the delusion, and the permanence of the patient's insanity.

"One of our females firmly believes she is the widow of the Duke of Wellington, and dislikes to answer to any other name or title than that of the Duchess. Another fancies she is filled with gunpowder, and is in constant dread of being set on fire and blown up. A third thinks she has some other person's head, and fears the rightful owner may call for it; while a fourth believes she has swallowed the sun.

"One male patient believes he is Napoleon the Great, and is often violent if addressed by other patients in his proper name. A second thinks he is a spirit living in the next world, and is surrounded by spirits who control his actions, and cause all his troubles. A third is filled with devils, who look out through him and who torment him in a great variety of ways, rendering his life inexpressibly miserable. A fourth does not labour with edged tools for fear that some being will descend upon and 'cut him up.' Another always speaks of himself as the Son of God.

"In strong contrast to these and others like them, are two patients, one male and one female, who, with constant exhibitions of violence, destructiveness, and filth, have discovered no delusion, but have been clear and coherent amid all their noise and madness."

The two cases last-mentioned are particularly interesting in a medico-legal point of view. They are fresh examples of some of the difficulties which prevent the attainment of a clear, lucid, definite, and exact system of the medical jurisprudence of insanity.

We have rarely, if ever, met with so graphic a description of the general physiognomy of melancholia, as well as the characteristics of the mental disorder, as that which is contained in this report. For this reason we present it to our readers.

"Thirty-six patients were admitted whose insanity was of the type of melancholia. Perhaps no class of patients suffer so keenly as those whose disease is of this form. Their lean, slender, stooping persons; pale, sallow features; brown, dry, scaly skins; reddened noses; hollow, changeless expression; uneasy, suspicious glances; all speak of their gloomy fears and forebodings of evil. Fear with all its terrors hangs over them; one believes that, given up to the power of the devil, he shall be led to take the life of his wife or child, and flies from them to seek an asylum where he may be controlled and his family left in safety. Again, he fears he has in some mysterious manner committed a heinous crime, and the wrath of God rests upon him.

"Another sees all about him persons bent upon his ruin and destruction. To-day he is to suffer; his time is come; his friends have already been most cruelly treated, and he can look for nothing better.

"Another accuses herself of having committed the greatest of crimes, and justly brought upon her the vengeance of heaven. Now she prefers instant death to the agony of uncertainty, and again she prays for delay in the execution of a sentence from which there is no escape.

"This class of patients know well what is done for them, and understand perfectly all that is said; yet kindness and attention, argument and persuasion, always fail to convince them. They can reason clearly enough, and appreciate whatever is brought before them. But they are so changed; all their thoughts, feelings, and affections are changed. Their habits and mode of life are changed. Their relation to external objects is changed. No feeling of security can triumph over their fears. No argument can subdue their prejudices. No pleasure can divert their apprehension of evil."

The insane are so generally misunderstood, the real nature of the disease is so generally misapprehended, that we cannot forbear to quote the following remarks, to the truthfulness of which there is no doubt we might obtain the testimony of every physician who has any considerable experience in the treatment of mental aberration:—

"The insane always appreciate that kindness of heart and that benevolence of feeling which will interest itself in their unreal and extravagant miseries, and is ever solicitous to relieve their suffering. They are keenly alive to that benevolence which will take them by the hand and lift them up, and be to them a friend and a companion. They always look for one in whom are the qualities of mutual forbearance and fellow-feeling.

"It is true that kindness of heart may do harm by giving way to unreasonable demands and indulging vicious propensities. It may even become so passive as to strengthen the delusions which are characteristic of the disease. But when mingled with a pure devotion to duty and a keen perception of right, it becomes the most powerful means in the care and treatment of the insane."

Dr. Bemis has a thorough conviction of the importance of manual labour, as a hygienic and curative agent in the treatment of the insane. He candidly acknowledges, in allusion to the hospital under his charge, that "the great evil in this, as in many similar institutions, is idleness."

For the purpose of more generally applying this restorative means to the patients, "more extensive farming operations than have hitherto been carried on will present, in a great variety and abundance, opportunity and inducement to engage in that best of all occupations. Increased facilities for various kinds of labour in the workshops will also afford to many agreeable employment, and occupy and strengthen their mental faculties without irritation or fatigue."

A broader scope is given to the moral treatment by the improvements mentioned below.

"The reading and billiard-rooms, suggested in the report of last year, are now completed and furnished on both sides of the house.

Similar rooms, not so large, and with the substitution of a bagatelle board instead of a billiard table, have been prepared in the women's department.

In the notice of a former report it was mentioned that the modern system of forced ventilation had been adopted at this hospital. Its effects are thus stated:—

"In a hygienic point of view, the results of our system of ventilation cannot be overstated. Patients who formerly were violent, filthy, and disgusting, are now tranquil and tidy. Those who were uniformly pale, feeble, and sickly, are now improved in health and appearance. The standard of general health has been greatly elevated since the introduction of the present plan of warming and ventilating the house."

4. The report of the *State Lunatic Hospital*, at Taunton, Mass., for the fiscal year ending with the 30th of September, 1859, contains elaborate tables of information in regard to the patients of that institution. We extract, as usual, the most important items:—

	Men.	Women.	Total.
Patients at the beginning of the year	156	145	301
Admitted in course of the year	122	109	231
Whole number	278	254	532
Discharged, including deaths	113	78	191
Remaining at the end of the year	165	176	341
Of those discharged, there were cured	59	39	98
Died	29	13	42

Died of phthisis, 12; softening of brain, 5; chronic mania, 5; maniacal exhaustion, 4; paralysis, 4; dysentery, 3; diarrhœa, 3; marasmus, 2; epilepsy, disease of heart, inanition, and suicide, 1 each.

"Insanity," says Dr. Choate, "operates in shortening life in several ways; first, by diminishing the nervous or vital energy; secondly, by developing disease in the various vital organs; and thirdly, by its influence in masking or concealing any disorder which may accidentally supervene, until it assumes a serious form. To the operation of the one or the other of these influences may be ascribed the fatal termination of most of the cases of disease in lunatic hospitals."

In the consideration of the influence of locality, as a generative cause of the disorder, it is said that "in the rural districts the prevailing habits and passions are less exciting and turbulent than in the large towns. Domestic troubles and the passions common to human nature in all places, love, anger, disappointment, and grief, are the predominant moral causes of insanity. To these in the cities are added greater depravation of manners, habits of vicious indulgence of all kinds, the strife of ambition and competition and speculation, late hours, reverses of fortune, and in all respects more excitement; and consequently in the latter, insanity prevails more extensively. The four counties in this district, which contain all the large towns and cities, have sent us this year ninety-two per cent. of the whole number."

The case given below furnishes a good illustration of the effect of hospital treatment in mitigating the symptoms and correcting the habits, in cases of incurable mental disorder, as well as of the mistakes which are but too frequently made by the friends of the patients. There is abundant experience of this kind at every institution for the insane.

"A man of seventy years of age, after a slight attack of paralysis, exhibits symptoms of a weakened intellect. He soon becomes uncomfortable in his family, wilful, unwilling to listen to advice or remonstrance, gets up at night and wanders about the neighbourhood, and finally, among other freaks, refuses obstinately to wear his clothing. He comes to the hospital, and in a short time, by the force of example, by constant care and attention, by the restraining influences of the place, by the absence of all sources of irritation, by the strict enforcement of regularity in all his habits of life, and by the operation of the change to a strange scene and strange companions, he becomes perfectly mild and manageable, and never thinks of taking off his clothing, or of walking about at night, but conducts himself in all respects with propriety and decorum. Still his conversation indicates that the disease is not removed. In this condition he is found by his friends at their first visit. Mistaking the effects of hospital treatment for permanent improvement, they immediately consider the matter of his removal; and refusing to give credence to the statement that a short residence at home will bring back his former condition, they soon arrive at the conclusion that their duty to him requires them to make the trial. In the case which has called forth these remarks, the patient was brought back in ten days, with the statement that on the second day after his return home he tore off his clothing and conducted, in all respects, as before his first admission here. From the time of his recommitment his deportment has been quiet and gentlemanly; his habits in all respects those of a rational being, and he has conformed willingly to all the regulations of the institution."

In common with many other subjects, that of the use of mechanical appliances to the body of the patient for the purpose of curbing the violence of mania, or restraining the propensity to suicide, is susceptible of both affirmative and negative arguments. At the present time, when, without having yielded the position that such restraining apparatus is sometimes both justifiable and useful, the tendency among the superintendents of American hospitals is gradually and constantly toward their abandonment, or, at least, toward their minimum of wholesome use, it is proper that Dr. Choate's view should be presented. Beginning with the generally recognized proposition that at all institutions for the insane there is a class of patients requiring *some* restraining treatment, he proceeds:—

"The only question is, in what form can this be applied without injury, or rather with positive benefit to the patient. And when we hear that in this or that hospital no mechanical restraint of any kind is made use of, the inquiry at once comes up, is the treatment which is substituted for it equally safe, equally judicious, and not liable to even greater objections than the mode of treatment which is avoided? For the restraint of violent, destructive, and dangerous patients, four methods of restraining treatment are known and practised. They are first, seclusion in strong rooms; secondly, mechanical restraint; thirdly, the hands of attendants; and lastly, what are called depressing remedies. The question is, which shall we use? In most of these cases, which fortunately are few in number, I prefer to use mechanical restraint. On the male side of the house this has been used a very few times in the course of the year, and for short periods, many weeks together often passing without any man being restrained in any way. On the female side it has been used somewhat more frequently. The only form in use in this hospital is the camisole, which consists of an ordinary waist, made of some strong materials, with long sleeves sewed up at the ends. This is in all respects comfortable to the patient, and effectually prevents the success of attempts at self-destruction, and to denude the person. If properly applied in cases judiciously selected, I can see no valid objection to its use."

He then gives his opinion of the substitutes for mechanical means. *Seclusion in strong rooms* he believes to be "in every respect injurious; that it increases the habits of destructiveness and violence, and leads almost inevitably to solitary vice and filthy practices, or, if these are already learned, confirms and strengthens them. * * * To *the hands of attendants* there are equally weighty objections. To control by opposing muscle to muscle, with the insane as with the sane, only arouses more obstinate resistance, and increases the excitement." The *use of depressing remedies*—antimony and the like—he thinks "a practice in the highest degree injurious, unsafe, and liable to the most flagrant abuses." He believes it injurious because the disease is asthenic, consequently contra-indicating the application of such remedies; and liable to abuse, from the fact that they may be so easily and secretly administered. The whole tenor of his argument is very similar to that of Samuel Tuke, in the introduction to his translation of Dr. Jacobi's work on hospitals, published nearly twenty years ago. By this remark we intend no imputation or intimation that it was borrowed. We simply wish to show that, nearly at the origin of the non-restraint system, an acute and sagacious observer of the insane met the scheme with nearly all the arguments which can even now be alleged against it. They are such as it would seem cannot fail to impress themselves upon the mind of every experienced alienist; and, so far as we know, they have never been satisfactorily answered.

5. The Massachusetts *State Lunatic Hospital*, at Northampton, was erected under all the light which has been thrown upon the subject of hospital architecture in the course of the last twenty-five years. It has been tested by the experience of more than a year, and its superintendent, Dr. Prince, asserts that "in the convenience of its general arrangements, and the adaptation of its various parts to their purposes, it is probably second to no other."

	Men.	Women.	Total.
Patients in the hospital, Sept. 30, 1858	93	127	220
Admitted in course of the year	45	48	93
Whole number	138	175	313
Discharged, including deaths	40	40	80
Remaining, Sept. 30, 1859	98	135	233
Of those discharged, there were cured	18	15	33
Died	7	12	19

Causes of Death.—Phthisis, 9; maniacal exhaustion, 7; epilepsy, disease of the heart, and anæmia, 1 each.

"Dysentery and fever of the severer forms have been strangers to our halls, and the few cases of acute disease which have come under treatment have yielded readily to remedies. There has been no death from acute disease originating in the house. The healthfulness of the location; our exposure to purifying winds; the dryness of the soil; the efficient system of ventilation and drainage, and the strict attention paid to the laws of health, have preserved them from those diseases to which the mental and bodily condition of a great majority of the patients would naturally make them susceptible."

It appears from the report that progress has been made in the introduction into this new institution of the various means which modern experience has shown to be instrumental in forming a proper plan of hygienic and curative treatment.

6. The general results at the *Butler Hospital for the Insane*, in 1859, were as follows:—

	Men.	Women.	Total.
Patients in the hospital, January 1	67	68	135
Admitted in the course of the year	30	12	42
Whole number	97	80	177
Discharged, including deaths	29	13	42
Remaining, December 31	68	67	135
Of those discharged there were cured			14
Died			10
Aggregate of patients, 1848 to 1859, inclusive			904
Discharged			768
Recovered			296
Died			180

According to his usual practice, Dr. Ray gives but few statistics in his report, and scarcely any of the details which it is customary among the superintendents of most other institutions of the kind to furnish. The report is chiefly occupied by an essay upon the influence upon mental health of that principle in human nature which "has long been recognized under the names of sympathy, and propensity to imitation." It is an interesting article, well worthy of the perusal of every physician. We will endeavour to impart as good an idea of it as our limits will permit.

He says of this principle: "It has been regarded—too much, perhaps—as a supplementary element in our mental constitution, manifesting itself in curious and anomalous phenomena, rather than as an all-pervading, indispensable principle, without which the great ends of our being would utterly fail. It needs no profound knowledge of the springs of human action to perceive that every man's daily experience reveals, in some way or other, the operation of this law of our nature. Indeed it can hardly be questioned that in populous communities it determines, more than anything else, not only those great social movements which possess an historical importance, but also the sentiments and impulses which, for good or for ill, shape the views and conduct of the individual. Independent, self-originating movement is, probably, a far rarer thing than that which springs, more or less directly, from some outward and distant source. The character of the latter, in any individual, must obviously be determined, therefore, by the character of the movements immediately around him. * * *

"In looking for the orign of insanity, we are apt to confine our attention to the class of influences which lie near at hand and directly before our face, and fail to discern those agencies which, though more remote and obscure, may be none the less efficient. The bereavement or misfortune which apparently drove reason from her throne may have had less to do with this result than the habitual train of thought and emotion which supplies the mind with no additional power, but rather diminishes its energy by its fruitless activities. True, activity is the law of our nature, but it is not necessarily promotive of mental health; for there is a kind of activity which, while it produces agreeable sensations, leads to enfeeblement and disease. And it is precisely because these sensations are agreeable that this kind of activity is far more common than that whose results may be, on the whole, more salutary and satisfactory.

"Now, it is in regard to this class of influences that the mind is governed very much by the law of sympathy. The deductions of reason are deliberately wrought out, each man working for himself; while moral movements, even of the deepest character, are propagated with a kind of electric rapidity. Nearly related to this law of sympathy, and perhaps only another form of it, is the propensity to imitate, which is witnessed in every kind of mental temperament and every grade of mental culture. We say and do what others say and do, and often for no other reason. Indeed, so completely is this propensity independent of reason, that it is exercised automatically, and without reference to the quality of the object. Especially is it active among those who are labouring under excessive nervous irritability, or some other abnormal condition of the nervous system. Even muscular movements, which would seem, at first thought, to be exclusively under the control of the will, are often propagated in this manner with a degree of force and continuance which no effort of the will could reach. We all know how, in a school, the convulsive movements of chorea may be propagated from one child to another, and how the example of a stammerer is followed by many others. In the history of those great awakenings which occurred in the Western States in the early part of the present century this phenomenon appears on the grandest scale. * * * During the twelfth, thirteenth, and fourteenth centuries this class of phenomena prevailed epidemically in Europe, and large numbers of people were affected. In most of those cases the bodily agitation was accompanied by some degree of mental disorder, equally independent of the will, and in some instances predominating over the bodily affection.

"I do not say that mania, in its most common forms, is ever propagated in this manner, although it might be said with some show of support; but there can be no question that the preliminary aberrations are very much under the control of this law. The same may be said, especially, of other mental affections, which, though they do not pass under the name of insanity, certainly indicate an abnormal, if not a morbid, condition of the brain. The epidemical character of suicide, depending solely on this propensity to imitate, has been often observed. At the Hôtel des Invalides, in Paris, a few years ago, a soldier was found one day hanging by the neck to a post, and within a short time twelve others hanged themselves to the same post. When the post was removed, this strange epidemic ceased. A volume would scarcely contain the accounts that might be gathered of epidemical suicide. Even acts of homicide have been known to spring from the impression made upon the mind by hearing of other similar acts. * * *

"In every community there are multitudes ready to receive impressions that will, more or less seriously, derange their mental health. They are marked by no peculiarities; they are supposed, perhaps, to be perfectly straight and sound; and when the disaster comes, it seems like thunder from a cloudless sky. It is this latent susceptibility to mental disorder which often renders the operation of the law of sympathy so pernicious, and converts an agency intended only to enlarge the sphere of our enjoyment into an instrument of mischief and woe.

"The slightest examination of this our modern life will show us a host of agencies belonging to the ordinary routine which, by means of this law of sympathy and propensity to imitation, produce an unhealthy tone of feeling, which not only deranges the proper order and balance of the moral sentiments, but often terminates, at last, either in unequivocal disease, or in conduct where the element of moral depravity is mingled in some uncertain proportion with that of cerebral disorder and disease. In no age of the world have these agencies been so effective or so numerous as at the present. Far above and beyond all others is that of the press, whose power, during the last sixty years, has been extending at an unexampled rate. There is not a single phasis of human passion—not a single combination of its various elements—not a single development of its slumbering activities—not a single abnormal deviation from its ordinary channels—not a single manifestation of its effects on actual life, which is not displayed by the public press in the strongest colours which an ambitious rhetoric can give it. * * * The columns of a single newspaper, without exaggeration, it may be said contain more materials for stirring the sympathies of men, for good or for evil, than the unwritten lives of countless multitudes. They occupy the leisure moments of thousands, which would otherwise be given to listless rest, and furnish inexhaustible materials for thought or emotion—the only kind, perhaps, which they ever obtain. * * * A murder or a suicide, a breach of trust or an audacious robbery, committed in the obscurest corner of the land, is proclaimed to all the world. The details of a disgusting criminal trial, exposing the darkest aspects of our nature, find an audience that no court-room less than a hemisphere could hold; and a tale of railroad or steamboat disaster stirs the blood of the Eastern lumberman in his camp, and of the California gold-hunter in his digging, even before the coroner's jury has rendered the usual verdict, 'nobody to blame.' The appeals of an aspiring demagogue, the debates of an excited convention, the platform of a political party, the last letter of the last presidential candidate, exercise the minds of millions who, without this agency, would have moved on to their dying hour in happy ignorance of them all.

"It is not every occurrence whose communication to the world can be productive of unmingled good. For reasons just given, no small proportion of those which are thrust upon the reader's attention leave a positively unhealthy impression; and when we consider that besides the multitudes who, in addition to other reading, never pass a day without looking over a newspaper, there is a scarcely smaller number who read nothing else, we may get some faint idea of the magnitude of this result. The details of vice and crime which occupy so large a space in the daily sheet, repeated day after day, familiarize the mind with their hideous features, and thus blunt the edge of its finer sensibilities. The effect of it all is, that the mind not only becomes careless of moral distinctions, but incapable, in some degree, of perceiving them; its relish for the simply good and beautiful and true is lost, and in its place we find an insatiable craving for what will create a strong sensation, and a positive sympathy, perhaps, with wrong and wrongdoers. By a well-known law of the animal economy, excessive activity of a function leads, at last, to a morbid condition of the organ; and thus it is that this kind of mental activity becomes a prolific source of cerebral disorder; not of the more palpable forms—such as inflammation or softening—but of a degree of irritability or abnormal erythism which often terminates in overt disease.

"The operation of the principle in question is clearly exemplified in the prevalence of suicide, as I have already intimated. * * * The propensity to homicide is often, unquestionably, propagated in the same way. In Paris, some thirty years ago, a young woman murdered a neighbour's child. The extraordinary circumstances of the act, and the vivid discussions which it provoked among medical men, gave it an unusual degree of publicity, and awakened an unusual interest in the public mind. At a session of the Academy of Medicine, Esquirol stated that within two months after this event there came to his knowledge six instances of attempted homicide, among persons previously correct and beyond suspicion, led to it, according to their own statement, by reading or hearing the details of this case. Several other members, on the same occasion, bore similar testimony touching the effect of that example. This is not an insulated fact. It happened to have been observed by men who understood its full significance, and therein alone was it peculiar or exceptional.

The correctness of these views may not be readily recognized by all; but let it not be supposed, for that reason, that we are fighting with shadows. The impression made upon the mind by surrounding influences is, in a great degree, a matter of temperament and culture, and therefore nothing can be more different than the impression thus made on different individuals under circumstances apparently similar. * * * An event scarcely noticed by one, is regarded by another with the deepest concern. An occurrence which to one suggests only matter of curious speculation, in another touches the inmost springs of emotion. A popular movement which is viewed with pity and disgust by one class of minds, awakens the sympathies of another, and bears them along, willing captives, in its irresistible course. Hence it is that persons of a certain culture and moral temper find it difficult to conceive how the sheet, whose contents they scan with more or less indifference, can be so potent an instrument of agitation to any description of readers. * * *

"The tales of fiction, too, which abound in the newspaper press, often appeal to the coarsest sentiments of our nature, and are prized solely for the thrilling sensations which they excite. Nobody can suppose that such sensations help one to accomplish the true ends of living; and if so, their effect must necessarily be pernicious and unhealthy.

"Far be it from me to lay the blame of all this mischief at the door of those who manage the newspaper press. * * * The fault really lies in the public taste which craves and demands such reading; and the true remedy consists, not in blaming the people connected with the press, or addressing to them philosophical reflections on the operations of the mind, but in refining and elevating the public taste, by improving our methods of education, and multiplying the means and appliances of a higher and sounder cultivation.

"Among the mental exercises characteristic of our day and generation, which are unfavourable to the mental health, it would be something like acting the play with the part of Hamlet left out, were we to omit all mention of one scarcely secondary in importance to that we have been considering. Never before did so large a proportion of the current literature consist of works of imagination, and never before did they, as a class, display so much ability and artistic skill. * * * Novels are now read by every description of persons, and by many who read nothing else. * * *

"Generally speaking, there can be no question that excessive indulgence in novel-reading necessarily enervates the mind, and diminishes its power of endurance. In other departments of literature, such as biography and history, the mental powers are more or less exercised by the ideas which they convey. Facts are stored up in the memory, hints are obtained for the further pursuit of knowledge, judgments are formed respecting character and actions, original thoughts are elicited, a spirit of investigation is excited, and, more than all, life is viewed as it really has been and must be lived. A mind thus furnished and disciplined is provided with a fund of reserved power to fall back upon when assailed by adverse forces, which all of us, in some shape or other, at some time or other, must expect to encounter. In novel-reading, on the contrary, the mind passively contemplates the scenes that are brought before it, and which, being chiefly addressed to the passions and emotions, naturally please, without the necessity of effort or preparation. Of late years a class of books has arisen, the sole object of which is to stir the feelings, not by ingenious plots—not by touching the finer cords of the heart, and skilfully unfolding the springs of action—not by arousing our sympathies for unadulterated, unsophisticated goodness, truth, and beauty, for that would assimilate them to the immortal productions of Shakspeare and Scott—but by coarse exaggerations of every sentiment, by investing every scene in glaring colours, and, in short, by every possible form of unnatural excitement. In all this there is little or no addition to one's stock of knowledge, no element of mental strength is evolved, and no one is better prepared by it for encountering the stern realities of life. The sickly sentimentality which craves this kind of stimulus is as different from the sensibility of a well-ordered mind as the crimson flush of disease from the ruddy glow of high health. A mind that seeks its nutriment chiefly in books of this description is closed against the genial influences that flow from real joy and sorrow, and from all the beauty and heroism of common life. A refined selfishness is apt to prevail over every better feeling; and when the evil day comes, the higher sentiments which bind us to our fellow-men by all the ties of benevolence and justice and veneration furnish no support nor consolation. Let me not be misunderstood. I do not say that no one can read a novel without endangering the health of his mind, for, under certain qualifications, nothing could be further from producing such a result than this kind of recreation. Who can number the hours of discomfort and sorrow which have been relieved of half their burden by the delightful fictions of Scott? The specific doctrine I would inculcate is, that the excessive indulgence in novel-reading, which is a characteristic of our times, is chargeable with many of the mental irregularities that prevail among us in a degree unknown at any former period."

7. The report of 1860 of the *State Lunatic Hospital* of Pennsylvania is unusually brief, the medical portion of it comprehending little else than the customary tabular information.

	Men.	Women.	Total.
Patients in the hospital, January 1st	150	117	267
Admitted in the course of the year	83	60	143
Whole number	233	177	410
Discharged, including deaths	84	52	136
Remaining, December 31st	149	125	274
Of those discharged, there were cured	18	13	31
Died	12	11	23

"The causes of death were, in three cases, epilepsy; in thirteen cases, chronic mania; in one case, consumption; in one case, apoplexy; and in five cases, disease of the brain."

"The lectures and magic lantern exhibitions have been regularly continued during three evenings of the week, from October to April, and furnish to all who may feel inclined to attend them, an agreeable means of spending the long winter evenings."

On the night of the 12th of May, the barn belonging to the hospital was destroyed by fire, together with several horses and most of the farming implements. It is supposed that the conflagration was the work of an incendiary—a patient who, about two years before, had eloped from the hospital. The barn of the poor-house, in Harrisburg, at which, also, the man had formerly been placed, was discovered to be on fire about three hours after that at the hospital. The man is in prison.

A new barn, 102 feet in length by 56 in width, internally arranged in the most commodious and convenient manner, has been erected.

8. Señor Ramon De La Sagra, a Spanish gentleman who had held offices of considerable importance under the government of his native country, made a tour through the United States about twenty-five years ago, and after his return published an account of his travels. The book was the work of a utilitarian, a *savant*, a philanthropist. It was translated into French, and had an extensive circulation on the continent of Europe. It contains expressions of the highest admiration of the benevolent institutions of this country, and more especially of their manner of growth out of the philanthropy of the people. Accustomed as he was to seeing institutions of the kind originate directly from the government alone, it was a new idea to him to behold them springing from the enterprise and humanity of private citizens, and it appears that he derived from it a more exalted opinion of his fellow-men. Nor was he backward in recognizing the propriety, not to say the necessity, of the custom, that when individuals, or private corporations, have borne the *onus* of establishing an institution, and have fully demonstrated its importance to the welfare of the citizens at large, the State government lends its aid, and gives to that institution a scope and power commensurate with the needs of the people.

These remarks have been suggested by the report now before us—that of the *Western Pennsylvania Hospital*. The origin and progress of that institution have been such as those which in other cases won the encomiums of La Sagra. May the legislature of Pennsylvania not neglect the complete fulfilment of its duties for the full accomplishment of the praiseworthy work!

The new building, 345 feet in length, and consisting of a central portion, with a wing upon either side, was commenced in May, 1859, and before the work was suspended for the winter, the walls were erected "to the height of the first or main story."

	Men.	Women.	Total.
Patients in hospital, January 1, 1859	52	38	90
Admitted in course of the year	71	37	108
Whole number	123	75	198
Discharged, including deaths	62	36	98
Remaining, January 1, 1860	61	39	100
Of those discharged, there were cured	28	16	44
Died	7	3	10

Died from tubercular consumption, 4; epilepsy, 2; exhaustion, 2; "one from convulsions (and) one from puerpera."

The report of Dr. Reid is mostly occupied by an exposition of the importance of treating insanity in its early stages, supporting his own views by quotations from various authorities upon the subject.

We invite Dr. Reid's attention to the suggested usefulness of adding to his list of tables, one showing the ages of the patients at the time of first attack by insanity.

9. The report of the *Western Lunatic Asylum*, of the State of Virginia, includes a period of two official years.

	Men.	Women.	Total.
Patients in asylum, October 1, 1857	228	161	389
Admitted in course of two years	52	50	102
Whole number	280	211	491
Discharged, including deaths	61	58	119
Remaining, September 30, 1859	219	153	372
Of those discharged, there were cured	29	33	62
Died	23	17	40

Causes of Death.—Marasmus, 12; pulmonary consumption, 9; epilepsy, 5; cerebral disease, 3; typhoid fever, 2; diarrhœa, chronic diarrhœa, colic, ascites, general dropsy, dyspepsia, paralysis, apoplexy, and suicide, 1 each.

Among the patients is one who is blind, one a deaf mute, and one a blind deaf mute.

Dr. Stribling says—and his long devotion to the care of the insane gives great value to his opinion—"Every year's experience but enhances our estimate as to the value of occupation. It should be *the great item* in any system designed to promote the health and comfort of those who require the appliances of an asylum. The farm, garden, grounds, workshops, &c., afford congenial employment to many of our male patients. In sewing, knitting, spinning, house-work, &c., many of the females are employed. Those who thus engage most willingly and systematically, are uniformly best contented, and enjoy a condition of mental and physical health and comfort far more desirable than others, who restrict themselves merely to reading and to amusements."

A long and large list of garments, bedding, and other articles of domestic use, which have been made at the asylum in the course of the two years, furnishes satisfactory evidence of the industry of the female patients.

The library has been increased, and pictures hung upon the walls of the galleries and the rooms of the patients. "A billiard-saloon has just been completed, in which is an excellent table with marble board."

The following remarks upon the use of the nose-tube will be read with interest:—

"Several years since, Dr. William Hamilton, then and now a valued assistant in this institution, suggested that we substitute for other modes (of compulsory injection of food to the stomach) the nose-tube. This had been tested elsewhere, but the reports as to its utility were few, and not encouraging. In so far as we knew (and still believe), it had failed to receive the indorsement of any one in charge of an institution for the insane in the United States.

"For more than three years past no other means have been allowed here for forced alimentation; and as a matter of duty, I can but record, as the result of this experience, my unqualified preference for it over any other appliance yet suggested. As with the stomach-tube and pump, the spoon, &c., it is important that he who officiates understands the anatomy of the parts, and be cautious as well as skilful. In this institution none other than a medical officer ever undertakes to force food upon a patient."

The number of patients at the asylum is constantly such that a large number of applicants are necessarily rejected. "Very many," says Dr. Stribling, "remain in the jails and elsewhere, whose wretched condition calls for sympathy and aid—such aid, indeed, as can only be afforded by the General Assembly of our State. At the last session of the legislature a proceeding was *initiated* for the establishment of a third asylum. Those to whom, under the law, its interests were confided, will of course report fully in regard thereto. I sincerely trust that report will be such as not merely to justify, but, in view of public sentiment, to require the approaching legislature to appropriate ample means with which to complete the good work." P. E.

Art. XIX.—*On Criminal Abortion in America.* By Horatio R. Storer, M. D., of Boston, etc. Philadelphia: J. B. Lippincott & Co., 1860. 8vo. pp. 107.

In our review of the twelfth volume of the *Transactions of the American Medical Association*, contained in the present number, will be found a notice of the able report made by Dr. Storer and others on the subject of criminal abortion. In this report reference is made to certain evidence that had been collected by the committee, in proof of the leading positions laid down by them as to the criminality of abortion, its frequency, and the causes of its prevalence. The evidence in question was published originally in the *North American Medico-Chirurgical Review*, and is now issued in a separate form for more general circulation.

The investigation into which Dr. Storer, to whom is to be credited the collection and arrangement of the evidence referred to, has entered, is full, able, and satisfactory, and well worthy the serious consideration not only of every member of the medical profession who has a just appreciation of the important mission he has undertaken, but of every legislator, every expounder and administrator of the laws—of every individual member of the community, in fine, who, while he defends his own individual rights, would extend an equal defence to the rights of others, even the humblest and most insignificant of the human family, from the moment of conception until the period when they are called, by that fiat within whose scope all are included, to leave this for another state of existence.

Dr. Storer has established most conclusively, and upon data the validity and sufficiency of which will scarcely be denied, the extreme criminality of abortion in every case in which it is procured intentionally and for the sole object of destroying the life of the fœtus—without such destruction being necessitated by a due regard for the safety of the mother, or by any other equally imperative cause—and in cases where, had not the product of conception been thus prematurely got rid of, it would doubtless have survived to the termination of the full period of utero-gestation, and been then born alive.

The more difficult questions of the frequency of the crime, and its rapid increase in our midst, are cautiously and skilfully handled. Although the data within our reach, by which the extent to which criminal abortion has been and is now practised, are too imperfect and uncertain to lead to any other than an approximate result, still, a tolerably correct judgment in respect to both these particulars may be formed by a careful examination of the evidence derivable from the comparative increase of population; the published records of still-births; the number of accusations and trials for abortion; the published lists of immediate maternal deaths; the comparative size of families now and formerly; the experience of physicians, either from direct applications for abortion, or the frequent evidence he meets with in his practice of forced abortion having occurred recently or at some previous period, more or less remote; and, finally, from the pecuniary success of known abortionists, and from the very great and constantly increasing demand for abortion-producing nostrums, rendering the traffic in them throughout the country a common and highly profitable occupation. From these various sources a mass of evidence may be deduced sufficient to compel all, who will take the trouble to examine it, to the painful conviction that the practice of criminal abortion is carried on among us to a fearful extent, and that it is every year rapidly on the increase; that, notwithstanding our high pretensions to enlightenment, our wide-extending philanthropy, our vaunted zeal for the cause of "pure and undefiled religion," we are perfectly willing to tolerate —if we do not, in fact, countenance and encourage—in our very midst a crime from which, when perpetrated from the same motives and for the same ends, we should imagine that all save the most debased and ruthless savage would shrink with disgust.

The causes assigned by Dr. S. for this general turpitude are numerous and diversified. Among the chief of them he enumerates the low *morale* of the community as regards the enormity of the crime; the ease with which its true character, in individual cases, may be concealed; the unwillingness of its victims to give testimony that would also criminate themselves; the possibility of the crime being perpetrated by the pregnant female on herself, without assistance; the ease with which the law, as it now stands, for the prevention of criminal abortion, may be evaded; the lack of proper and efficient judicial preventives, such as legal provisions for registration, against the concealment of births, and against secret interments; the prevalent ignorance of the jurisprudence of obstetric operations in both government officials and medical witnesses; the doctrines of political economists, that the welfare of the labouring classes, and the general prosperity of a community, are impeded by a numerous offspring; and, lastly, the fear of childbirth.

We do not intend to follow Dr. S. in his exposition of the deleterious effects of the practice of abortion upon the health and lives of the females who submit to it; of the evidence by which the occurrence of abortion may be established; the cause of its occurrence, whether natural, accidental, or intentional; and the several circumstances connected with its perpetration, when criminally practised. For a very full and satisfactory examination of all these questions we refer our readers to the essay before us, a careful perusal of every portion of which will be found fruitful in instruction.

Dr. S. refers to the fact that medical men often become the "innocent abettors" of the practice of abortion, by the apparent disregard they exhibit for the sanctity and value of fœtal life, by their frequent recourse to the procurement of premature labour as a means of safety to the mother, or, in place of such procedure, substituting the less justifiable measure of the destruction of the fœtus by craniotomy. In respect to the induction of premature labour, Dr. S., while he admits that cases do occasionally unquestionably occur in which it may be correctly viewed as the sole means by which, while the greatest chance is afforded for the safety of the fœtus, the life of the mother can be preserved. He believes, however, that the operation is seldom required for the sake of the fœtus, and in general only after the commencement of the seventh month of pregnancy. To warrant a resort to it in any case, its necessity must be clearly shown. Even then, however, it should be delayed as long as is consistent with the child's safety; and when practised, it must be by such means as, whilst most efficient, are the least liable to injure the child.

The induction of premature labour is most frequently resorted to in order to avoid the performance of craniotomy after labour has set in. The necessity of craniotomy, unless extreme, can, it is evident, only be known with certainty, before the expiration of pregnancy, from the experience of past labours.

"But here," remarks Dr. S., "too much caution cannot be exercised; the rules of the books and of accepted authorities are not to be blindly followed. Craniotomy at the full time is still too frequently performed; where even it has been suggested by the character of a previous labour, children are often, or might be, born living; where it seems indicated by direct exploration, as ruled even by recent writers, children are sometimes, or might be, born living; where it was formerly thought absolutely essential, the progress of obstetric science has now rendered it often unnecessary."

Other points are referred to, in which physicians are directly interested, as tending, by their apparent disregard of fœtal life, to render themselves innocent abettors of criminal abortion: such as neglect of efforts to prevent miscarriage when threatened, or when it has become an established habit; neglect of well-directed attempts at resuscitating stillborn children where there is the slightest chance of success; the performance of operations of any kind upon a pregnant woman, even toothdrawing, that might be delayed; the careless or unnecessary use of ergot; the relying upon a single and unaided opinion, where not one life only, but two, may be endangered. "Other instances," Dr. S. remarks, "might be adduced; but enough has already been said to prove that the importance of the subject we are considering, and the responsibilities resting upon the profession regarding it, demand, as I have elsewhere suggested, that physicians should possess, should acknowledge, and should govern themselves by an *obste-*

tric code." The necessity of such a code will become the more manifest the more are investigated the several questions pertaining to obstetric jurisprudence.

"Distressing in the retrospect, inconvenient frequently in the present, such a code would undoubtedly prove; but it is demanded of the profession by the progress of our science, by humanity, morality, and religion. Were the facts in the case more generally known, and the existence and sanctity of fœtal life more universally appreciated, it would be also demanded by public opinion.

"We have thus seen that 'the absurd enactments still remaining on the statute-book, the careless indifference with which means are adopted to prevent its occurrence, its increase, and its frequent induction by obstetricians, are all evils which loudly and imperatively call for the closest investigation.'"

After an examination of the legal provisions in existence, more especially in the United States, in reference to the crime of abortion, the causes of the inefficiency of these provisions for its suppression, are noticed; the difficulties they present to the conviction of the parties concerned in its perpetration, the absurd distinctions they create between the condition of the fœtus in the early and the later periods of pregnancy, and the trifling light in which they recognize the practice of abortion. In but few instances is the crime, intrinsically considered, viewed by the law as a heinous one, as an attempt to destroy the life of a child, as deliberate murder; but, under many very loosely defined circumstances, it is held even as a perfectly justifiable act.

The all-important question next presents itself, Can the practice of criminal abortion be entirely, or in any degree, restrained by law? Dr. S. believes that it may be prevented, to a very great extent at least, by judicious and well-executed legal enactments for the registration of births, marriages, and deaths, and against the concealment of births, and secret burials; the establishment, under proper regulations, of foundling hospitals by the different State and municipal governments; the prohibition, under severe penalties, of the sale or dispensing of any drugs popularly known as emmenagogues, excepting upon the prescription of a respectable practitioner of medicine; an entire revision of all the laws bearing upon the subject of criminal abortion, so that the legal definition of the crime may be rendered more clear and positive; the evidence required for the establishment of the guilt of all the parties implicated made to bear directly upon the fact of the act of abortion being intended as well as consummated during any period of pregnancy, and by whatever means, or of its having been attempted in cases of presumed pregnancy, even where pregnancy shall be proved not to have existed; the punishment of the female in whose case criminal abortion has been practised, either as a principal or *particeps criminis;* the fixing of a correct and uniform standard of justification for the practice of necessary abortion; and the making penal the encouragement of criminal abortion by any publication, lecture, advertisement, or announcement, or by the sale or circulation of any such publication.

The essay concludes with some judicious remarks in respect to the duty of the medical profession in the effort to suppress the practice of criminal abortion, in order that no portion of the guilt involved in the practice may rest upon them.

"Enough," says Dr. S., "has already been said to show that there is need of increased vigilance on the part of medical men, lest they themselves become innocent and unintentional abettors of the crime. If the community were made to understand and to feel that marriage, where the parties shrink from its highest responsibilities, is nothing less than legalized prostitution, many would shrink from their present public confession of cowardly, selfish, and sinful lust. If they were taught by the speech and daily practice of their medical attendants that a value attaches to the unborn child, hardly increased by the accident of its birth, they also would be persuaded or compelled to a similar belief in its sanctity, and to a commensurate respect."

"It follows, from the evidence we have adduced, that if it be the duty of the profession to urge upon individuals the truth regarding this crime, it is equally their duty to urge it upon the law, by whose doctrines the people are bound, and upon that people, the community, by whose action the laws are made. And this should be done by us, if we would succeed in suppressing the crime, not by separate action alone, but conjointly, as the profession, grandly representing its highest claim—the saving of human life. Every step towards this end should be hailed with enthusiasm." * * *

"Too much zeal cannot be shown by physicians in relieving themselves from the weight of responsibility they may have incurred by innocently causing the increased destruction of human life. Let it not be supposed by the public that there is among us, either in theory or practice, any disregard of the unborn child. If such impression have already obtained, from our own negligence, the falsehoods of irregular practitioners, or otherwise, it should at once be removed." * * *

"We should, as a profession, openly and with one accord appeal to the community in words of earnest warning, setting forth the deplorable consequences of criminal abortion—the actual and independent existence, from the moment of conception, of fœtal life. And that the effort should not be one of words merely; we should, as a profession, recommend to the legislative bodies of the land the revision and subsequent enforcement of all laws, statutory or otherwise, pertaining to this crime, that the present slaughter of the innocents may to some extent, at least, be made to cease. For it is 'a thing deserving all hate and detestation, that a man in his very originall, whiles he is formed, whiles he is enlived, should be put to death under the very hands and in the shop of nature.'" D. F. C.

ART. XX.—*Report on the Smallpox, in the City of Providence, R. I., from January to June,* 1859. By EDWIN M. SNOW, M. D., Superintendent of Health. Providence, 1859.

THE smallpox was introduced into the city of Providence towards the close of the year 1858, by a gentleman who had been on a visit to New York. He was attacked soon after his return with varioloid. He had been vaccinated in childhood, forty-four years previously. The attack was a very mild one, requiring no medical attendance, and as no suspicions were entertained in regard to its character, no precautions were taken to prevent the spreading of the contagion. From this case were traceable, directly or indirectly, the seventy-three cases which occurred in the city during the first five months of the year 1859. Twenty-one of these cases were unmodified smallpox, and fifty-two varioloid; thirty-three were in males and forty in females. In January there were ten cases, three smallpox, seven varioloid; in February six cases, three smallpox, three varioloid; in March twenty-nine cases, nine smallpox, twenty varioloid; in April seventeen cases, four smallpox, thirteen varioloid; in May eleven cases, two smallpox, nine varioloid. In those under five years of age, there were nine cases of smallpox and three of varioloid; between five and ten years, there were four cases of smallpox and five of varioloid; between ten and fifteen years, there were one case of smallpox and eight of varioloid; between fifteen and twenty years, there were one case of smallpox and three of varioloid; and in those of twenty years and over, there were six cases of smallpox and thirty-three of varioloid. Of the whole number of cases forty-six occurred in Americans, and twenty-seven in foreigners; sixty-four in whites and nine in colored persons. Four of the cases only terminated fatally; of these one was three months old, one three years, one four years, and one thirty-five years; one was a male and three females; three were white, one was colored; all were of American parentage. One died on the 8th, one on the 9th, one on the 10th, and one on the 11th day after the appearance of the eruption. Of the whole number of cases of smallpox (twenty-one), eight were confluent and severe. Of these, four, or one-half, died. No case of distinct smallpox or of varioloid proved fatal. Of the four cases of confluent smallpox which recovered, one was an infant only seven weeks old when attacked; one was a boy five years old; one a boy of fifteen years; and one a colored man of thirty years.

Of the fifty-two cases of varioloid, four were very severe, and undistinguishable from confluent smallpox until the 7th or 8th day, when the sudden cessation of fever, and speedy dessication of the pustules showed that the previous vaccination had modified the disease, and, probably, saved the lives of the patients. All the severe cases of varioloid were in persons who had been only once vaccinated, and that many years previously. In many the marks of vaccination were not satisfactory. Eighteen of the cases of varioloid were extremely mild, with very few pustules, and attended with very little inconvenience to the patients. By one of the mildest of these cases, in which but six imperfect pustules were formed, the variolous contagion was communicated to a child, resulting in a severe attack of smallpox.

In nine of the cases of smallpox, including three of the confluent, and in thirteen of the cases of varioloid, no medicine whatever was administered.

The average duration of the four fatal cases of smallpox was nine and a half days from the commencement of the eruption.

All the facts connected with the occurrence of smallpox at Providence, R. I., in the early part of last year, prove in the clearest and most striking manner the protective power of vaccination. Between the 1st of January and the 16th of July, 1859, one child, vaccinated eight days after exposure to the contagion of smallpox, was attacked. Two other persons, vaccinated six days after exposure, had the varioloid. Beside these, not a single individual, so far as known, of the probably three thousand persons who were vaccinated or revaccinated, subsequently to the first of January, had the slightest indication of varioloid, notwithstanding their exposure to the variolous contagion. In one locality, twenty-one children vaccinated for the first time, were repeatedly, and for weeks continuously, exposed to smallpox, with entire impunity. It was known, in another case, where over two hundred had been vaccinated or revaccinated *after exposure* to smallpox or varioloid, that in no one of them was a single symptom of disease developed. In nearly all the cases of varioloid, some years, and in the greater proportion, many years had elapsed since vaccination. Not a single person who had ever been vaccinated, at any period of life, died from smallpox during the prevalence of the disease, and Dr. Snow is satisfied that no person took the smallpox in its unmodified form who had ever been vaccinated. Two individuals who had the disease and recovered, believed they had been vaccinated, but had no positive evidence of the fact, and exhibited no cicatrix upon the arm.

In regard to the supposed danger of the communication of other than the vaccine disease by vaccination, the whole of the facts developed during the prevalence of smallpox in Providence are opposed to the possibility of such communication. In no one of the 1203 persons vaccinated at the office of the Board of Health after the 1st of January, 1858, were injurious results experienced from the operation, and the same is the testimony of other physicians with respect to the cases vaccinated by them. With the care taken by every conscientious physician to obtain vaccine virus only from young and healthy children, Dr. Snow does not believe there is the least cause to fear the communication of any disease by vaccination besides that for the production of which the operation is performed.

Dr. Snow believes that there is no danger of the vaccine virus becoming effete by its being passed frequently through the human body, and rendering necessary its being renewed from the cow at short intervals. The virus used in Providence for vaccination had been in use for many years, and had consequently passed through a large number of persons. Still the vesicle produced by it is perfect in every respect, according to the description of Jenner. It follows precisely the described course, from the insertion of the virus to the separation of the scab, leaving a perfectly characterized vaccine cicatrix. Add to this the fact that the vaccinations with it have afforded invariably absolute protection against repeated and continued exposure for weeks, to infection from severe cases of smallpox.

Many persons, when exposed to the contagion of smallpox, contract the disease in a more or less modified form, although they had been effectually vaccinated. Though in this its modified form the disease is generally mild and without danger, still it is always unpleasant, and even in its mildest form may communicate smallpox to the unprotected, and varioloid to such as have been vaccinated. The production of the modified form of smallpox in the vaccinated has been attempted to be accounted for in two ways. *First*, that although a first vaccination is successful and characteristic, it may, in certain cases, from constitutional insusceptibility or some other cause not well understood, afford only a partial or imperfect protection against smallpox; or *secondly*, that a first successful vaccination gives only during a certain period full and perfect protection, which becomes gradually impaired in the course of the organic changes constantly taking place in the human organism, especially the change from childhood to adult life.

"My opinion," says Dr. Snow, "has always been, that the first theory is true; but the facts I have collected during the past season, seem to favour the last theory. But whichever of them is true, *the necessity of revaccination is fully established.* A revaccination, with its peculiar modified effects, is the only certain proof that the first vaccination was good, and that the person is fully protected. And if a person has been vaccinated and revaccinated until no characteristic effect is produced by it, he may rest perfectly satisfied that he is safe from all danger of contracting either smallpox or varioloid."

The truth of this statement is established by a long series of the most imposing statistics. D. F. C.

ART. XXI.—*Report of a Select Committee of the New York Chamber of Commerce on Quarantine.* Adopted July 7, 1859. 8vo. pp. 48.

CONSIDERED in all its aspects and relations, the subject of quarantine is one which presents strong claims to the serious consideration of every enlightened community. In the correctness of the views entertained in reference to it, and the propriety of the means by which those views are attempted to be carried out in practice, are involved not merely the interests of the mercantile classes, but the safety and comfort of every individual resident within the limits of a commercial city.

When we take into account the state of popular and even professional knowledge as to the nature and etiology of diseases, and the gross errors which prevailed as to the mode of their propagation, when quarantine was first adopted, little surprise need be entertained at the absurdities—the unwise restrictions—the personal annoyances by which it was characterized at its inauguration, and for a long period subsequently; nor at the controversy to which almost every question in relation to it—its efficiency as a means of preventing the introduction of disease—its proper duration, or the best plan for its practice and enforcement—has, from time to time, given rise. The only thing surprising in the case is, that the experience derived from a close observation of the results of quarantine at the different ports at which it has been most strictly enforced, and during a series of extensive epidemics of malignant disease, together with the light derived from our increased and more exact knowledge of the character and causation of many of the maladies as a barrier to which quarantine was, at first, more especially designed, that any difference of opinion should continue upon the subject—that there does not exist an almost unanimity of sentiment as to the actual objects to be attained by a judicious system of quarantine, as well as to the mode in which such a system must be administered in order that its legitimate purposes may be secured. There are certainly no inherent or any other very serious difficulties in the way of a satisfactory settlement of the entire question of quarantine. We are persuaded that were it left to a commission composed of enlightened and experienced physicians a system of quarantine could be devised, the faithful execution of which, while it secured to the community all the safety from the introduction of disease into its midst, that it is possible by the best devised and most strictly observed precautions to afford, would be divested of many, if not all, of the onerous burdens, arbitrary and unwise restrictions, pecuniary sacrifices, and positively mischievous results which are justly chargeable to some, at least, of the quarantine regulations now in force.

The discussion of the subject of quarantine by conventions held during the years 1847, 1848, and 1849, and composed of delegates from the leading commercial ports of the United States, of unquestionable character and intelligence, and selected because of their supposed familiarity with the important questions involved in the subject of the prevention of disease by and through the commercial marine, has brought the subject of quarantine prominently before those most deeply interested in it, and in a form the best adapted to furnish the true data upon which alone correct views and practices in respect to it can be based.

The final action of the last session of the National Quarantine Convention, held in the city of New York during the past year, is the cause which prompted the appointment by the Chamber of Commerce of that city of a special committee to report on "the general subject of the quarantine laws of the State, and the legislation required to give practical effect to the declared sentiments of the National Quarantine and Sanitary Convention."

The conclusions arrived at by the committee and embodied in the report which lies before us are based mainly upon the reports and discussion of the last-named convention, and the opinions furnished to the committee, at its request, by eminent members of the medical profession of New York, in regard to the scientific questions involved in the general subject submitted to it for its investigation. Although, occasionally, somewhat loosely worded, the conclusions at which the Committee of the New York Chamber of Commerce has arrived are in accordance with the facts which are deducible from the history of quarantine--the observations of the most enlightened physicians in respect to the correct etiology and mode of propagation of diseases, and the lights derived from the scientific discoveries of the age generally.

The committee recommends that "the persons of the sick and the well should be relieved from the confined and impure atmosphere of the vessel, and, instead of being imprisoned within the narrow limits of a quarantine station, they should at once, after proper cleansing and changing of raiment, be allowed free egress into the pure air of the country or their customary places of residence.

"The question of safety in regard to clothing and bedding, and articles of merchandise which, by medical advice, are brought under the term of *fomites*, is a different one, and must be treated with a due regard to the lights which science and experience have granted to us."

In considering how far existing restrictions should be modified in regard to crews and passengers sick, or in danger of infection, from smallpox, typhus fever, or cholera, the report speaks as follows:—

"In reference to the first named disease it is, unfortunately, always rife in our midst, and the regulations of quarantine can do no more for the protection of the community against its ravages than to keep the well who pass through its bounds free from danger of contagion by vaccination, and to place the sick at the earliest practicable moment within the influence of good air and judicious treatment."

"Typhus fever is a malady to be dreaded, and, under certain unfavourable circumstances, more so than either of the diseases mentioned. In unwholesome places, and especially in uncleanly and infected vessels, it is a fearful enemy of human life. It should rarely, if ever, be confined within the close bounds of a quarantine station longer than is indispensably necessary for the purification of person and clothing, and the removal to more appropriate accommodations.

"The like remarks will apply to cholera, in regard to which disorder confinement should rarely be resorted to. This is a malady to be found only where localizing conditions that favour its prevalence exist, as on shipboard, in filthy dwellings, in pestilent atmospheres, or where large bodies of people are congregated. How palpable, then, is the truth that the patient should at once be removed beyond such influences!" * * *

The committee declare it as their opinion that the effect of the general prevalence of the doctrine of non-contagion of yellow fever, founded, as they remark, on principles of truth, justice, and philanthropy, adopted by the National Convention, will be beneficial in an eminent degree to the interests of commerce, and will exercise a large influence in extending the work of reform in other branches of the quarantine station.

While we believe that the general doctrines recognized by the report before us are founded in strict truth, and that efforts should be made to obtain the proper legislation for a thorough revision of the quarantine laws of all our commercial cities in accordance with those doctrines, we have to regret the very loose use of the term *fomites* to indicate the several media by which non-contagious diseases may be communicated through the commercial marine—foul vessels, foul cargoes, foul baggage and clothing, etc. The term fomites has heretofore been restricted to such materials as are capable, under certain circumstances, of absorbing and retaining unchanged *contagious* emanations, so as to convey them to distant places, and there give rise to the same specific diseases in those who are exposed to the materials thus charged with contagious matter as those from which the latter were derived. Much confusion, to say the least, must necessarily be occasioned by the employment of the term in a sense so very different from its original and well-established one as that which is given to it in the report before us. D. F. C.

Art. XXII.—*Remarks upon Chylous or Milky Urine, with an Account of Two Cases of that Disease.* By C. E. Isaacs, M. D., one of the Surgeons of the Brooklyn City Hospital, etc. etc. Read before the New York Academy of Medicine, June 15th, 1859.

The peculiar appearance of the urine known as chylous or milky urine, is of extremely rare occurrence. It is very certain, at least, that the observations which have been reported, heretofore, in respect to it, are too few in number and too imperfect in details, to enable us to form any definite conclusions either in reference to the particular circumstances under which it is liable to occur, or the lesions of the principal organs, if any, with which it is most generally associated. Even so far as regards the chemical composition of the urine upon which its so-called chylous or milky condition depends, we know nothing with certainty; few, if any, accurate microscopical or chemical examinations having been made with the view of testing it.

Two cases of the disease having occurred at the Seaman's Retreat, Staten Island, N. Y., under the care of Dr. T. C. Moffat, chief physician of the institution, a favourable opportunity was offered for the careful study of some of the morbid conditions of the organism with which chylous or milky urine is associated, and the difference in composition between the latter and the renal secretion in its normal state. The history of these cases is presented by Dr. Isaacs, consulting surgeon to the Retreat on Staten Island, in the publication before us, together with some general deductions as to the causes and nature of the condition of the urine in question, drawn from the examination of the facts derived from the study of these two cases, and the few others found upon record.

In one of the cases which occurred at the Retreat—that of a Spanish sailor, twenty-six years of age—in which a milky state of the urine had existed, at irregular intervals, for upwards of three years—an examination of the fluid by the microscope and by chemical tests, demonstrated conclusively, the existence in it of urea, lithic acid, chloride of sodium, hydrochlorate of ammonia, sulphuric acid, hydrochloric acid, the triple phosphates of ammonia and magnesia, and the phosphate of lime—in a word, the principal normal constituents of the urine; and it is probable, that *all* of the constituents of the secretion existed in the urine thus examined. In addition, it contained oil and albumen, and sometimes fibrin, and it was conclusively demonstrated that *the peculiar milky appearance of the urine was owing to the intimate combination of these two substances, forming, indeed, a kind of emulsion.* There were no red globules nor tube casts detected, after the most careful and repeated examinations.

In the second of the cases at the Retreat, that of a sailor born in Santa Cruz, twenty-three years of age, the condition of the urine was found upon examination, to be the same as in the former case; excepting that the urea and lithic acid were in very small proportion, and the fluid portion, on standing for some hours, deposited a thin layer of blood-globules at the bottom of the vessel.

This case terminated fatally; upon examination after death, both lungs, from their apices to the inferior surface of the lower lobes, were studded equally, and throughout their substance, with millions of miliary tubercles, from the size of a grain of sand to that of a mustard or hemp-seed. Under the costal pleuræ, they were also in countless numbers. The patient had never complained of cough or pain in the chest. All the other organs were healthy, with the exception of small deposits of yellow tubercular matter in the interior of the mesenteric glands. In the substance of the prostate gland were three tubercles, about the size of a buckshot. The structure of the kidney was decidedly healthy—the only morbid appearance was the presence of a very few small and scattered tubercles, which did not apparently interfere with its functions.

After taking a rapid view of the few observations in respect to chylous or milky urine to be found upon record, Dr. Isaacs remarks, in reference to its causation, that exposure to cold, especially when the body is heated, has apparently produced it. It has been attributed to the influence of mercury, but this seems doubtful. In one case, the primary cause was, undoubtedly, the inhalation of the vapour of turpentine. Dr. Isaacs has ascertained, from the captains of coasting vessels, who bring cargoes of turpentine from North Carolina, that the crews of such vessels are very subject to attacks of hematuria. The disease is said to occur most frequently in hot climates. The usual causes are most probably those which operate by determining an increased afflux of blood to the kidney, and the consequent congestion of the latter.

From a consideration of the most important of the cases that have been recorded, as well as the opinions of medical authorities in respect to the nature and causes of chylous urine, Dr. Isaacs believes that the following facts have been conclusively established.

"1. That the disease may continue for many months, and even years, without much apparent injury to the general health."

"2. That in such cases there may be, and have been, intermissions of several days, and sometimes of months and years, during which the urine was apparently healthy."

"3. That notwithstanding the daily loss of albumen, fibrin, red globules, and fatty matter, there may be very little or no emaciation. The patient may, on the contrary, abound in adipose tissue, and his muscles be apparently well nourished."

"4. The fatty matter generally appears in the urine after eating, and but seldom before, or if so, in a very small quantity. But there are exceptions to this as in the case given by Golding Bird.

"5. That astringents, and especially gallic acid, with attention to diet, exercise, etc., seem to have been the most efficacious remedies, but that the disease is generally very little under the permanent control of remedies.

"6. The kidney is certainly in a very different condition from that of Bright's disease (so called), inasmuch as renal epithelium tube casts, etc., are not generally found in the urine, neither do pathological changes occur in the kidney secreting milky urine, at all resembling those in Bright's disease. On the contrary, in the only two cases which Dr. I. has been able to find, viz., that of Prout and one reported by himself, the kidneys were perfectly healthy.

"7. From the examination of the kidneys in Dr. I.'s case, it is positively and conclusively demonstrated, that there was in that instance no *organic* lesion of the kidney, and from the symptoms and history of the other cases, the same conclusion may properly be deduced with regard to them. Moreover, the state of general good health, the intermittence of the symptoms, the absence of loss of weight, and the effects of remedies, all show that there was not, in any probability, any *organic* lesion of any other organs—at least, in the greater number of cases."

With regard to the pathology of this affection, Dr. Isaacs says: "It must be admitted, that the number of well observed cases, and especially of post-mortem examinations, of this rare disease, is too small to enable us to come to a positive conclusion as to its pathology. We may hope much from the additional information to be obtained from cases which will occur hereafter, and which, taken in connection with the rapid progress of physiological chemistry, cannot fail to bring us nearer to the truth. It may, however, be remarked, at the present time, that inasmuch as it has not been proved to depend upon any disease of the assimilating organs, or upon *organic* lesion of the kidneys, we are then justified in regarding it as a functional derangement of those organs, and which probably depends upon a peculiar condition of the renal nerves and capillaries, not as yet made manifest to the naked eye, nor even when aided by the microscope." D. F. C.

ART. XXIII.—*Contributions to Operative Surgery and Surgical Pathology.* By J. M. CARNOCHAN, Professor of Surgery in the New York Medical College, Surgeon-in-Chief to the State Emigrants' Hospital, etc. With illustrations drawn from nature. Parts I., II., and III. Philadelphia: Lindsay & Blakiston, 1858–1860. 4to. pp. 127.

THESE contributions are published in a collected form, the author tells us in his preface, in the hope that they will be found useful by those who recognize that it is from the study of particular facts operative surgery frequently derives its most valuable suggestions. "The methodical treatise, or *corpus scientiæ*," it is added, "is indispensable to the professor, the practitioner, and the student; but, after all, it must be recollected that the progress of operative surgery is chiefly effected by the discoveries of great surgeons in particular cases, and by new methods which effect cures that were once deemed beyond the reach of art."

As a rule, surgeons have been satisfied with the publication of their interesting and important cases in medical journals, the transactions of learned societies, and hospital reports. From publishing these contributions in a collected form, after they have already appeared in various medical journals, it seems that their author, after practical experience in the matter, finds the usual mode of proceeding to be insufficient for the realization of his objects.

The contents of the three parts before us are as follows:—

Of Part I.: Case of Amputation of the entire Lower Jaw; Remarks on Amputation of the Lower Jaw; Elephantiasis Arabum successfully treated by ligature of the Femoral Artery, with Cases.

Of Part II.: Case of Exsection of the entire Ulna; Remarks on Neuralgia of the Face, with a Case; Exsection of the Trunk of the Second Branch of the Fifth Pair of Nerves beyond the Ganglion of Meckel, for severe Neuralgia of the Face, with three Cases.

Of Part III.: On Congenital Dislocations of the Head of the Femur; Anatomical Observations on Congenital Dislocations of the Head of the Femur; On Restoration of the entire Upper Lip, with Cases.

All of the papers contained in Parts I. and II. have been published in medical journals: the one entitled "Exsection of the Trunk of the Second Branch of the Fifth Pair of Nerves beyond the Ganglion of Meckel, for severe Neuralgia of the Face, with three Cases," is contained in the number of this journal for January, 1858; the others have appeared from time to time in the various medical journals issued in New York. The paper entitled "Remarks on Neuralgia of the Face, with a Case," was published recently in the *New York Medical Press* (Vol. III., Nos. 4 and 5), and there the history of the case was continued down to the commencement of the present year. It seems that an additional operation had been performed, the neuralgic pains having returned, at which the portion of the trunk of the second branch of the fifth pair of nerves still remaining in front of the foramen rotundum, in immediate connection with the ganglion of Meckel, was excised. This operation was performed in June, 1859, and it is stated that "the result was satisfactory, and continued to be so."

Among the cases recorded in the paper on "Elephantiasis Arabum" as having been successfully treated by ligature of the femoral artery is that of Francisco

Podesta, upon whom the operation was performed in May, 1857. This same person entered the Pennsylvania Hospital in July, 1858, with his limb in as bad a condition as it ever had been, and left that institution in January, 1859, for the Philadelphia Almshouse.

From the papers in Part III., on congenital dislocations of the head of the femur, we see that their author still holds the same opinions in regard to the cause of the affection which he held at the time he published his treatise on the same subject, in 1850. The remote cause he refers to a morbid condition of the nervous system or centres; and the proximate cause to pathological muscular contraction, the unavoidable result of the primary disease. This opinion, which is one advanced by Mr. J. Guérin (*Recherches sur les Luxations Congénitales*, 1841), has been, to our mind, most satisfactorily refuted by Malgaigne, in his excellent article on congenital luxations in his volume on luxations. We notice that Dr. Hamilton, in his recently published work, after classifying, as Malgaigne has done, all the various doctrines on the subject in three divisions—one assigning as cause an aberration of the *nisus formativus*, the second entirely pathological, the third purely mechanical—admits the occasional agency of all the causes enumerated, and the probable concurrence of two or more in many instances. If all these so-called causes were really active in producing dislocation of the hip, and in many instances did aid one another, the affection could by no possibility be so rare as it is.

These Contributions are well printed, and fully illustrated by well-executed plates, and, when completed, will form a handsome volume. W. F. A.

Art. XXIV.—*Monograph on the Pathology of the Pituitary Body.* By Middleton Michel, M. D., 8vo. pp. 32, Charleston, S. C., 1860.

Although the position of the pituitary body at the base of the brain, and the apparent care with which it is secured against the possibility of danger, would appear to indicate it as an organ of some importance, it still remains among the few portions of the human frame, the uses of which have escaped the closest scrutiny of every physiological investigator. Placed beyond the reach of nearly all the accidents and diseases affecting the surrounding brain, and often remaining intact in the midst of the entire destruction of the latter, but little is known in respect to the morbid conditions to which it is liable, and the phenomena by which these are attended. Here and there, it is true, an observation may be met with scattered through the records of our profession, but so few in number, and so imperfect in details, as to afford but slight materials upon which to base any satisfactory history of its pathological conditions—their nature, causes, and effects.

A very rare and interesting case of disease having fallen under the notice of Dr. Michel, the post-mortem examination of which revealed as the chief lesion, a cancerous condition of the pituitary body, he was induced to collate and arrange such observations as bear any similitude to it, which the literature of our science may present.

While his researches to this end have led to the verification of some of the morbid conditions of the pituitary body—such as atrophy, hypertrophy, simple inflammation, abscess, cystic formations, calcareous deposits, and cancerous degeneration—he has not met with a single case in which the morbid processes and the symptoms were similar to the one he himself describes, unless we except a very brief statement by Professor Rokitansky, respecting an example of cancer of this part, with extensive destruction of the bones of the skull, which was observed by him in the dead body, but without any details in respect to the symptoms manifested during the lifetime of the patient.

From the several facts set forth in the essay before us, Dr. M. believes that, if we are warranted in drawing any conclusions in respect to the nature or the functions of the body in question, from the few observations we possess of its diseases, and their most frequent symptoms, such conclusions would seem to be:—

"*First.* That the pituitary body, however largely developed in some animals, is not a primary division of the brain, or a true encephalic ganglion, since its complete destruction is never accompanied by loss of intellection, motion, or sensation, beyond what may be satisfactorily accounted for by the necessary pressure which the morbid growth exerts upon more essential parts of the encephalon.

"*Secondly.* That from several of the morbid processess enumerated in this memoir, we have strong proof of the identity of the nature of this *hypophysis* with certain so-called vascular glands, such as the thyroid, thymus, spleen, and supra-renal capsules.

"*Thirdly.* That, while the diagnosis of its morbid conditions is rendered somewhat obscure from the absence of any ascertained function of the part, yet their almost constant connection with the simultaneous production of amaurosis in both eyes, with absence of symptoms of cross paralysis, will indicate the seat of the disease, when compared to morbid states of either hemisphere. And—

"*Fourthly.* That the long continuance of the disease in this situation, may propagate inflammatory action to neighbouring parts, followed by apathy, somnolency, syncope, cophosis, and other symptoms obscuring the diagnosis."

D. F. C.

Art. XXV.—*Medico-Chirurgical Transactions.* Published by the Royal Medical and Chirurgical Society of London. Vol. XLII. London, 1859. 8vo. pp. 461.

This volume of *Transactions* contains twenty-five original communications. Ten of these communications, or abstracts of them, were published in the numbers of this journal for last year, in the quarterly summaries of improvements and discoveries in the medical sciences.

As has been our custom for several years, we shall give a full analysis of these communications, at least of those not already reported in this journal, in the order in which they are published.

I. *A Case of Excision of the Head of the Humerus* (*Decapitatio Humeri*), *with its Results.* By John Birkett.

The subject of this case was a man, aged fifty-seven, who was admitted into Guy's Hospital, July 10th, 1855, on account of the condition of his right arm. Two years and a half before, being thrust violently against a stone wall, the right clavicle was broken, and the shoulder much contused. The shoulder-joint became inflamed; the inflammation terminated in suppuration, and three abscesses formed, and were opened. The whole of this period was passed in great suffering, and the man's health had declined in consequence.

When admitted to the hospital the right arm and forearm of the patient were œdematous; the least movement of the member gave him intense pain, and pus escaped from three sinuses behind, and on the outer region of the shoulder. This part was swollen, but there was not any deformity. Distinct crepitus was felt on moving the arm, and the head of the humerus seemed to glide away, and to be removed from its normal relations with the glenoid cavity.

The operation was performed by making a triangular flap of the integuments and deltoid muscle, the base above; the head of the humerus thus exposed to view was removed with a fine bow-saw. The articular cartilage of the glenoid cavity of the scapula was destroyed, but the bone was quite healthy. The focus of the disease appeared to be in the cancellous tissue situated between the great tuberosity of the shaft and the articular head; here was an excavation in which a small piece of necrosed bone was lodged. The wound had sufficiently healed in the course of twenty-five days for the man to leave the hospital, his general health became very good, and at the expiration of about a year and a half the sinuses closed.

At the time when Mr. Birkett reported this case, the man had been working for twenty months as a farm labourer. He could do any work not requiring a greater elevation of the arm than at a right angle with the body. The upper end of the humerus could be felt under the integuments, in front, near to the coracoid process of the scapula.

Although resection of the head of the humerus is not a very rare operation, yet we very seldom see recorded the result at a distant period of time. On this account, the communication of Mr. Birkett is one of very considerable interest. It would appear that in no case has the patient ever regained the power of raising the arm above a right angle with the trunk, or above the level of the acromion scapula.

If, instead of removing the whole head of the humerus, Mr. Birkett had satisfied himself with removing the small piece of the necrosed bone and the diseased cancellous tissue around it, a more favourable result, so far as the extent of motion in the arm is concerned, might have been obtained. By this proceeding, of scooping out the diseased parts, and also by preserving as much as possible of the periosteum, most satisfactory results have recently been obtained.

In his communication, Mr. Birkett reports another case, where a similar operation was performed, in 1848, by the late Mr. Aston Key. This patient, it is stated, has been actively employed as an engineer for the last six years.

II. *On Disarticulation of the Scapula from the Shoulder-joint, with Removal of the Acromial End of the Clavicle.* By George Matthew Jones.

A full abstract of this communication was published in the number of the Journal for April last. This, so far as we are aware of the facts, is but the third time that the entire scapula has been removed, leaving the arm still attached to the body. The notice of the fortieth volume of the *Transactions*, contained in the Journal for July, 1858, gives the history of a case in which the operation was performed by Mr. Syme; and Mr. Jones states that it has also been performed by a practitioner in Ayrshire, England.

Two cases have been reported in this country, where nearly the whole of the bone was removed. In one instance, that of Dr. Gross, reported in this journal for April, 1853, the glenoid cavity, and a portion of the acromion, were left; in the other, that of Dr. Blackman, referred to in this journal for October, 1858, the glenoid cavity, and a portion of the coracoid process, were left remaining. Mr. Jones believes that the danger from hemorrhage is much less when the whole of the bone is removed.

III. *Cases of Encephaloid Cancer affecting a Testicle which had been retained within the Cavity of the Abdomen.* By George Johnson, M. D.

An abstract of this very interesting case was published in this journal for April, 1859.

IV. *Cases of Refracture of Bone; with Observations.* By F. C. Skey.

An abstract of this paper was published in this journal for April, 1859. As is seen therein, Mr. Skey maintains that, in cases where fractured bones have become so united that movement is impeded, or local pain results, they may be violently and suddenly broken again, without *difficulty* and without *danger;* and this at any indefinite period of time. Several cases, which occurred in his own practice, are cited by Mr. Skey in proof of this opinion.

Strange as it may seem, Mr. Skey evidently regards this proceeding as novel. He speaks of Dupuytren as having endeavoured to remedy deformity after fractures by means of gradual extension and habitual pressure, and considers it original with himself to resort to more powerful agency, in order to obtain the separation of the bones. But the records of our art show that refracture of bones is advised by the most ancient authors whose writings have come down to us. Celsus even indicates exactly the same kind of cases for the performance of this operation as Mr. Skey. He says: *Solent tamen interdum transversa inter se ossa confervere; coque et brevius membrum, et indecorum fit; et si capita acutiosa sunt, assiduæ punctiores sentiuntur. Ob quam causam frangi versus* *ossa et dirigi debent.* (Lib. viii. sect. x. § 7.) Paulus Ægineta speaks of refracturing the bones when healed distortedly, but says that "the breaking them over again is not at all to be admitted, as it may occasion the utmost danger." (Sydenham translation, vol. ii. p. 477.) In the commentary added to the section wherein this subject is treated, the learned translator, Mr. Francis Adams, states that Avicenna speaks favourably of breaking the bones over again; and that Albucasis mentions the proposal with disapprobation. In fact, as we learn from Malgaigne's Treatise on Fractures—a work indispensable to all who write upon the subject of fractures, or desire to treat them properly, and which, thanks to the excellent translation of Dr. Packard, American practitioners not familiar with the language of the original, can now consult—the breaking of bones over again was practised habitually by surgeons down to quite modern times. Several of the surgeons he mentions made use of the knee for this purpose, just as Mr. Skey now does. As regards the length of time from the period of the original fracture, in Mr. Skey's cases, four months was the greatest at which he succeeded in breaking the bones, which in this instance were those of the forearm; in one, a case of fractured thigh, when nine months had elapsed, the attempt to refracture the bone was unsuccessful. Malgaigne cites cases, and successful cases, where fractures of the femur were broken again by Bosch, five, six, and seven months after the original injury. It was, according to Nélaton (*Path. Chirurg.*, vol. i. p. 680), owing to the influence of J. L. Petit, who raised his voice against the operation, that it was almost entirely abandoned until the time of Dupuytren, whose attempts to remedy deformity after fractures are referred to by Mr. Skey. Dupuytren, founding his opinions upon his own observations, which went to prove that a much longer time than was generally believed, is necessary for the definite consolidation of a fracture, taught that a vicious position in a broken limb might be rectified by force gradually exerted upon what he calls the provisional callus, the material composing which is fibrous tissue and cartilage. He declares that it is impossible to fix upon any exact time as that within which the callus may be made to yield; it will vary with many circumstances, among which are mentioned age, state of health, the particular bone, and the kind of displacement. As to refracture of the bones, by a force suddenly and violently applied, Dupuytren says that pathological anatomy has demonstrated the absurdity of the proceeding. (*Léçons Orales*, tom. iv. p. 144. Paris, 1834.)

Though this communication cannot be considered as pointing out a novel mode of practice, as the distinguished author would seem to claim, yet the profession must be gratified to know his opinions and his practice in a class of cases, in the treatment of which surgeons have always disagreed.

V. *Cases of Dislocation of the Os Calcis and Scaphoid from the Astragalus; with Remarks on the Importance of Dividing the Gastrocnemius and other Tendons, to facilitate reduction in various dislocations in the latter bone.* By GEORGE POLLOCK.

The cases reported by Mr. Pollock are two in number; in one of them the astragalus was dislocated forwards and inwards from the os calcis and scaphoid, in the other the astragalus was dislocated outwards. We say the *astragalus* was dislocated from the other tarsal bones with which it is articulated, and not, as Mr. Pollock has stated it, that the os calcis and scaphoid were dislocated from the astragalus, because, as Malgaigne very truly says, this mode of expression cannot be suffered in practice, it is the astragalus that projects out, it is the astragalus that tears the integuments and pierces through them. In fact, Mr. Pollock's paper shows the impropriety of calling these injuries dislocations of the os calcis and scaphoid, for throughout his whole paper it is always the *astragalus* that is dislocated.

In the first case reported by Mr. Pollock, which occurred in St. George's Hospital, under the care of Mr. Keate, in spite of great efforts it was impossible to reduce the luxation; the integuments sloughed, the tarsal joints were opened, amputation was had recourse to, but the patient died.

In the second case, where the bone was dislocated outwards, which case occurred under his own care, after using as much power as could safely be applied without producing the slightest alteration in the relative position of the displaced bones, the gastrocnemius tendon was divided, and the reduction of the bone was effected without any difficulty. The patient died four days afterwards in consequence of other complications; the condition of the foot remaining perfectly satisfactory until his death.

After reporting these cases, Mr. Pollock enters into a consideration of the variety of dislocations affecting the astragalus, in order to illustrate the advantages of the treatment adopted in the case last mentioned. The conclusions to which he arrives are these:—

1. In all *simple* dislocations of the astragalus *outwards*, from the os calcis and scaphoid, in which moderate extension fails to effect reduction, the gastrocnemius tendon should be divided, and extension subsequently made.

2. In all *simple* dislocations of the astragalus *inwards*, if moderate extension fails, the gastrocnemius tendon should be divided; if this be not sufficient to permit reduction under gentle extension, the division of the tibialis posticus tendon should be had recourse to.

3. In *compound* dislocations, not reducible under gentle extension, division of the tendons, which interfere with the reduction, should at once be performed.

The reason for dividing the tendon of the tibialis posticus in dislocation inwards is, that this tendon sometimes embraces the neck of the astragalus, and the head is thus fixed firmly between it and the calcaneo-scaphoid ligament. In such a condition of things extension would of course only aggravate the obstruction.

To avoid misunderstanding, it must be added that Mr. Pollock does not claim credit to himself as the first to suggest division of the tendons to facilitate reduction of dislocations of the astragalus, nor does he claim to have been the first to have divided these tendons in order to obtain such a result; he merely desires to call particular attention to the operation as one that will usually and materially assist reduction.

This communication of Mr. Pollock is one of very great interest; the division of the tendons, of which he is so able and enthusiastic an advocate, certainly facilitates greatly the reduction of a displaced astragalus, and in all cases where such a lesion exists, surgeons should be aware of the aid they can obtain from it. It is to be regretted, however, that Mr. Pollock has not gone more deeply into the subject, and while endeavouring to aid in the reduction of a most difficult dislocation, has not thrown some light upon the propriety of restoring the bone to its place, in certain of its displacements. When the astragalus is torn from its connections with the os calcis and the scaphoid, its nutrition would be most seriously impaired, and if the integuments be torn, it would, if restored to its place, be exposed to almost certain necrosis. There is not, perhaps, as Malgaigne declares in his volume on luxations, which it is to be much desired may soon receive an English translation, as the one on fractures already referred to, a more obscure question in surgery than that of luxations of the astragalus. Most works on surgery are exceedingly defective on the whole subject. In the late work of Dr. Gross, for example, there is no mention whatever made of the class of injuries forming the subject of Mr. Pollock's communication. Luxations of the astragalus are therein treated of as always *double*, that is, as if the astragalus, when torn loose from the os calcis and scaphoid, always lost its relations with the tibia and fibula. By far the most complete consideration of the whole subject is to be found in the work of Malgaigne just mentioned, and, what is worthy of remark, the article is not once referred to by Mr. Pollock.

At the conclusion of this communication is a table giving the results of treatment in fifty-five cases of simple and compound dislocation of the astragalus. It shows forcibly the dangers and difficulties attendant upon this injury. Of the 55 cases, 13 died; giving an average of 1 death in $4\frac{1}{4}$ cases of dislocation. The total number of reductions was 18 out of 55 cases; three of these died, leaving 15 cases of recovery after reduction, treated by the usual methods of extension. These give an average of about one reduction in every four cases of dislocation of the astragalus.

VI. *A Description of the Organs of Generation of a Hermaphrodite Sheep.* By W. S. SAVORY.

This sheep during life was regarded as an ewe, the external organs of generation presenting the characters of those of an ordinary female.

On examining the internal organs, in the place of the ovaries were two testes, each surmounted in its whole length by an epididymis, and by the termination of the corresponding uterine horn. These testes were smaller than those of an ordinary male; their minute structure was that of a natural testis; the only important difference which a careful examination could detect, was the absence of any traces of spermatozoa. This absence of spermatozoa, however, it should be remembered, has been recently shown by M. Godard to be always remarked when the testicle remains shut up in the cavity of the abdomen. On either side of the vagina was a well-formed seminal vesicle, which opened into the anterior wall, in common with a well-developed tube coming from the epididymis. The slender terminal portion of the uterine horn, instead of being only connected with the ovary by a peritoneal fold, as in the female sheep, had the same relation to the epididymis as the commencement of the vas deferens holds to the testis in the male. The uterus was smaller than that of the female, and the vagina only about half as long. The case, as Mr. Savory says, illustrates the original unity of type, and affords additional evidence of the true homology of the individual organs in the male and female.

This communication is accompanied by a plate, representing the parts above described.

VII. *On the Causes of Death after Amputation.* By THOMAS BRYANT.

A very full abstract of this communication was published in the number of this journal for July, 1859. The communication is one of great value, on account not only of the importance of the subject, but also of the very little that is definitely known upon it. The scanty character of the literature of the causes of death after amputation is referred to by Mr. Bryant himself, and given as one of the reasons for the publication of his paper. He declares, indeed, that with the exception of a valuable paper by Mr. James, published in the eighteenth volume of the *Transactions* of the Provincial Medical Association, he is unable to point to any single memoir in which they have been made a separate subject of investigation.

VIII. *On some of the Cyclical Changes in the Human System, connected with Season.* By EDWARD SMITH, M.D.

Several of the quarterly summaries of this journal, in the course of the last three or four years, have contained abstracts of papers by Dr. Smith, giving the results of his inquiries into the quantity of carbonic acid evolved from the lungs, the quantity of air inspired, and other phenomena of respiration, in the different hours of the day, together with the influence upon this great function of the body of the season, and of many kinds of food and medicines. In the present communication are given the results of the same inquiry extended throughout a whole year, and they show that great and important as are the changes of the day in reference to the maintenance of the health and the fulfilment of the duties of the body, those of season are even more so. The method adopted by Dr. Smith in these investigations, and the apparatus employed, were described in the number of this journal for January, 1857. It might here be noticed that the spirometer he uses is a dry gas-metre.

The results obtained by Dr. Smith are delineated upon a diagram that accompanies his communication. This diagram shows, in a large circle, nineteen inches in diameter, the number of grains of carbonic acid evolved, and the degree of temperature of the external air on many days in each month of the year. The general expression of the results obtained is that all the respiratory phenomena were lessened as the season advanced from spring to summer and autumn. The highest state of the functions was in spring; the period of decline was the beginning of summer; the lowest state was towards the end of summer and in the beginning of autumn; and the period of increase was the beginning of winter.

The relations established by Dr. Smith between these changes and physical phenomena, and particularly between these changes and the production and cure of disease, are highly interesting. It has long been a familiar fact that the human system is subjected to diseases varying in kind, intensity, and prevalency with periods of the year. The cause of this has hitherto been sought for out of the system—namely, in the meteorological conditions of the season; but, according to Dr. Smith, it will be more proper to connect them with general states of the system due, doubtless, in a great degree, to those meteorological variations. Diseases of an asthenic or a sthenic type prevail in accordance with the state of the system; when the vital changes are at their maximum, we have the former, and when at their minimum, the latter. Cholera, the plague, diarrhœa, and yellow fever are particularly restricted to the minimum period.

In a postscript, which is also illustrated by a diagram, the influence of the season of the year at which children are procreated or born upon their viability is examined into. The deductions here are made from all the deaths of children that took place in the northern district of England in the year 1857, a non-epidemic year; the total number being 3,050, nearly all of whom were under one year of age. The largest percentage of these children was born in that season of the year when the human system is in a minimum state of vitality, which is not, it should be added, the period at which the greatest number of births occur.

IX. *A Contribution to the Statistics of Cancer, collected from the Cancer Records of the Middlesex Hospital.* By Septimus W. Sibley.

An abstract of this communication was published in the July number of this journal for the past year.

X. *On the Forms and Stages of Bright's Disease of the Kidneys, with especial reference to Diagnosis and Prognosis.* Fourth Communication. By George Johnson, M. D.

As is well known, Dr. Johnson is one of those who hold the theory of the *oneness* of Bright's disease to be untenable. It certainly does appear to be inconsistent with the clinical history and morbid anatomy of the kidney in its various conditions. The points of distinction between the large white kidney and the contracted kidney are too numerous and too capital to allow the latter to be regarded as always but an advanced stage of the former.

The chief object of the present communication is to point out certain cases in which the kidneys, after having become enlarged, do subsequently undergo a process of contraction, in a greater or less degree. These cases, however, may well be regarded, as Dr. Johnson declares, as so exceptional in many of their most important features, that they afford a remarkable confirmation of the doctrine that in ordinary cases the contracted Bright's kidney is not an advanced stage of a previously enlarged kidney, but rather that it is the result of a distinct series of morbid changes. For convenience of description, these peculiar cases are divided by Dr. Johnson into three classes: in one, although the size and weight of the organ are found after death to be increased, yet there are unquestionable signs of commencing atrophy and contraction in the cortical portion; in the second class this contraction has proceeded further, so that the organ is smaller and lighter than is natural; and in the third class the kidney, after having become enlarged and undergone *fatty degeneration*, has subsequently contracted, the fat granulations being still visible in the atrophied gland. Cases of these several classes are referred to by Dr. Johnson, and an interesting one of the third class is related in some detail. The differential symptoms present during life, and the results of the *post-mortem* examinations of the kidney, in these three classes of renal disease, are carefully recorded.

The communication is beautifully illustrated by three colored plates, containing each two figures, representing the characteristic appearances of three different forms of contracted Bright's kidney, and by three wood-cuts, representing the sediment in the urine at three successive periods of a case of fatty kidney.

XI. *An Account of three Cases of Aneurism of or within the Orbit, treated by Ligature of the Common Carotid Artery; with Observations. To which is added a Report of a fourth Case, treated since the Paper was read.* By Thomas Nunneley.

To show the comparatively rare occurrence of aneurism, aneurism by anastomosis, or erectile tumour of the orbit, Mr. Nunneley, in this communication, before reporting his own cases, cites all that he has been able to find recorded in science. These are: five cases reported in the *Transactions*, by Travers, Dalrymple, Busk, Scott, and Curling; three cases in Walton's *Operative Ophthalmic Surgery*—one of his own, one of Velpeau, and one of Jobert; three cases in Dr. Wood's essay, *The Early History of the Operation of Ligature of the Primitive Carotid Artery*; and one case mentioned by Guthrie (*Operative Surgery of the Eye*), where aneurism of both ophthalmic arteries was found in a *post-mortem* examination of the body of a man. These, Mr. Nunneley says, are the only undoubted cases that have been recorded, so far as he has been able to ascertain; three other cases that have been published—one by Dupuytren, one by Schmidt, and a third by Freer—he believes to be of a doubtful nature.

Although it is true that the affection is not often met with, yet, without any very extended research, it is easy to increase the list of cases cited in this communication. There is one belonging to Mr. Roux, in which the carotid was ligated, with incomplete success, referred to by Nélaton (*Élémens de Pathologie Chirurgicale*, tom. i. p. 541). Broca (*Des Anéurysmes, et de leur Traitement*) cites a case cured by the injections of perchloride of iron, by Bourget (*loc. cit.*, p. 381); another, where Pétrequin, after tying the carotid without obtaining more than a momentary cessation of the pulsations, had recourse to galvano-puncture, which also was unsuccessful (*loc. cit.*, p. 306); and several others, not referred to by Mr. Nunneley, are mentioned by him in a note at page 44. Saltet, Langenback, and Rosas are said by Desmarres (*Traité Théorique et Pratique des Maladies des Yeux*, tom. i. p. 231) to have recorded examples of the affection, and these authors are not quoted. In a recent number of this journal (for July, 1859, p. 244) three cases are mentioned, which are exceedingly interesting, from the fact that they were cured by compression of the carotid artery.

The accounts given by Mr. Nunneley of the four cases treated by himself are full and satisfactory. In the first the affection was attributed to a blow received upon the eye; in the second there had never been any injury, and there was no way of accounting for the disease; in the third the patient, when stooping to take off her shoes, felt suddenly "as the crack of a gun" something give way in her eye; and in the last case, after a great and peculiar pain on the right side of the head, "sudden as a flash of light," the pain went into the eye, which felt stiff, hot, and could not be moved. All these cases were treated by ligature of the carotid, and with success, with the exception of the third, where the patient died on the sixteenth day after the operation, after symptoms that render it very probable that the nutrition of the brain had been seriously interfered with.

At the close of his communication, Mr. Nunneley discusses at considerable length the impropriety of designating all these peculiar vascular intra-orbital tumours, as "aneurisms by anastomosis," as is generally done by English writers. He seems to us, however, to have erred in the other extreme, in declaring that they are always either true, or circumscribed false aneurism.

XII. *Case of Aneurism of the Thoracic Aorta, which opened into the Trachea and Left Bronchus; and in which the Hæmoptysis occurred four years and eight months before death; with remarks on the circumstances attending the rupture of aneurisms, especially on mucous surfaces.* By W. T. GAIRDNER, M. D.

This case is well worthy of attention, not only on account of the very long period which existed between the occurrence of rupture of the sac and the ultimate fatal event, but also because of the occurrence of hemorrhage, in a modified form, at intervals during the whole of that very long period. Several other somewhat similar cases are referred to by Dr. Gairdner, particularly the well-known one of Mr. Liston, where rupture of the aneurismal sac actually took place at least five months before his death. Dr. Gairdner accounts for these cases by the healing up of the small opening, which takes place after the sudden removal of pressure, such as occurs after copious hemorrhage.

XIII. *A Case of Popliteal Aneurism, successfully treated by Flexion of the Knee-Joint.* By ERNEST HART.

XIV. *A Case of Popliteal Aneurism successfully treated by continued Flexion of the Knee-Joint.* By ALEXANDER SHAW.

Abstracts of both of these communications, together with some remarks made by Mr. Fergusson, at the time of their reading before the Society, were published in this Journal for July, 1859.

XV. *On some of the Effects of Primary Cancerous Tumours within the Chest.* By George Budd, M. D.

In this communication, Dr. Budd reports at length three cases of primary cancerous tumour in the chest, involving the root of the right lung. In all of them, that lung had formed adhesion to the pleura costalis, and the pulmonary tissue was condensed from inflammation, which, in three of the cases, had proceeded to more or less disorganization of the pulmonary tissue, and to the formation of pockets of pus. These changes are attributed to the cancer involving and destroying all, or a great part of the nerves with which the pleura and lung are furnished. In support of his opinion, Dr. Budd refers to the suppurative and destructive inflammation of the gall-bladder, met with in cases in which a cancerous tumour exists in the portal notch of the liver, and destroys the nervous threads sent from the solar plexus to that viscus.

Secondary cancerous tumours scattered through the lungs are common, and though often of considerable size, yet the pulmonary tissue immediately surrounding them is generally perfectly healthy. The only way of accounting for the peculiar effects of primary cancer of the lung, is that given by Dr. Budd, namely, the peculiar position it occupies. According to Dr. Wilks, in a very valuable work recently published, what is called primary cancer of the lung has really its origin in the bronchial glands, and generally a large mass may be found encircling the root of the lung and involving the organ at this part.[1] A tumour situated here would interfere with the nerves on which the function of the lung and its healthy nutrition depend.

XVI. *Two Cases of Empyema, illustrating the advantage of making two openings, and adopting the plan of "drainage," in the operation of paracentesis, in that disease.* By S. J. Goodfellow, M. D. Followed by some remarks *on the operation and on the plan of treatment by "drainage" generally.* By Campbell De Morgan.

A few years since, Chassaignac suggested and practised a plan of "drainage" for the healing of deep-seated collections of matter which is very simple and very efficacious. An India-rubber tube, about one sixth of an inch in diameter, and perforated at frequent intervals by notching with scissors, is passed through the abscess or sinus, and the matter continuously and uninterruptedly exudes through the perforations. In this communication, Dr. Goodfellow relates two cases of empyema, in which this plan was adopted with signal benefit for the purpose of draining the pleural sac. In the appendix which Mr. De Morgan has added, the advantages of the use of the drainage tube are strongly set forth, and the manner of introducing it in cases of empyema is described. The operation he practises in such cases is very simple. A puncture with a trocar is made between the fifth and sixth or sixth and seventh ribs. A firm, long, iron probe, somewhat bent, is then passed through the opening to the lower and back part of the pleural cavity: an incision is made upon the end of the probe, which is then brought through the opening thus made. A strong piece of silk thread is passed into the eye of the probe and drawn through the two openings, and the drainage tube, being firmly tied to one end, is then drawn through by means of the silk. The ends of the tube are tied together, and the operation is completed.

XVII. *An Inquiry into the Nature of those Cases of Strangulated Oblique Inguinal Hernia, termed "réduction en bloc, ou en masse;" with special relation to the anatomy of the actual lesion, and practical deductions derived from an examination of the cases.* By John Birkett.

The purpose of this communication of Mr. Birkett is to show that when what is called "*réduction en bloc ou en masse*" is effected, in cases of strangulated inguinal, and inguino-scrotal hernia, the sac remains in the scrotum, and is not detached from its connections with that receptacle. A description of the dissection of cases, in which this accident is said to have occurred is given, in order to demonstrate the actual morbid anatomy of the lesion. In some of the cases, the orifice of the hernial sac was found to have been pushed away from the internal abdominal ring, by the pressure upon the scrotal tumour, that part of the hernial sac between its orifice and the internal abdominal ring was dilated into a pouch, and into this pouch the hernia had been pushed out of the scrotum and inguinal canal, and remaining fixed there behind the internal abdominal fascia. In other cases where the pressure upon the hernial tumour was greater and more continued, the neck of the sac had been torn, and the hernia had escaped through the laceration, and was found altogether outside the peritoneum.

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[1] Lectures on Pathological Anatomy, delivered at Guy's Hospital during the summer sessions of 1857, 1858. By Samuel Wilks, M. D. London, 1859, page 247.

That variety of inguino-scrotal hernia, in which the hernia has descended into the vaginal process of the peritoneum, is shown by Mr. Birkett to be the one in which this accident most frequently happens. The reason of this is the great length of that portion of the sac lying in the inguinal canal, or between the internal and external abdominal rings. This anatomical conformation renders the hernia more difficult to reduce, and also favours its dilatation into a pouch within the internal abdominal ring.

As to the treatment to be adopted in these cases, a review of the tables given by Mr. Birkett shows very plainly that if the strangulated bowel be not relieved from its constriction by an operation, and the impediment to its reduction into the peritoneal cavity removed, the death of the patient is certain. These tables contain an account of eight cases, where no operation was performed, all of which died; and twenty-nine cases operated upon, of which thirteen recovered.

This communication is accompanied by four diagrams, to aid in the explanation of this accident, the so-called "réduction en bloc."

XVIII. *On the Administration of Belladonna, and on certain Causes which modify its Action.* By HENRY WM. FULLER, M.D.

XIX. *On the Reparative Process in Human Tendons after Subcutaneous Division for the Cure of Deformities, illustrated by a Series of Specimens and Drawings from Fifteen Post-mortem Examinations.* By WM. ADAMS.

XX. *Observations on the Medical Administration of Ozonized Oils.* By THEOPHILUS THOMPSON, M.D.

Abstracts of these three papers were published in the October number of this journal, for 1859.

XXI. *On the Connection between the Heat of the Body and the Excreted Amounts of Urea, Chloride of Sodium, and Urinary Water, during a Fit of Ague.* By SIDNEY RINGER.

This communication is one of considerable length, extending over forty pages; its study, however, is greatly facilitated by twelve charts or diagrams, by which it is accompanied. The cases of ague observed were two in number, one of the quotidian type, the other of the tertian. A case of hectic fever in phthisis is also narrated; in this the phenomena were found to be identical with those presented by malarial ague. In conducting his observations, Mr. Ringer appears to have exercised the greatest care, and to have spared no pains to make them not only as accurate but as complete as possible. The urine was examined every hour during the day; and the temperature in the axilla was noted every quarter of an hour, as also was the frequency of the pulse. In one case these observations were continued for six consecutive days, in the other for two. In the case of hectic fever in phthisis the observations for only one day are given.

The general results obtained from these investigations may be thus stated, in a few words; during the hot and cold stages of ague the increase of urea and of chloride of sodium was constant, and their amount was in very close relation to the temperature of the body. It might here be added, lest some be forgetful of the fact, that the temperature of the body rises before the commencement of a paroxysm of ague, continues to rise during the entire cold stage, and reaches its highest point during the hot stage.

"The increase in the amount of urea and of chloride of sodium during the cold and hot stages," says Mr. Ringer, "has been affirmed by Traute and Jockmann, Moos, Redenbacker, and Hammond."

The article of Dr. Hammond, published in the number of this journal for April, 1858, is referred to by Mr. Ringer, in a note at the foot of the page. In this article it is most clearly and distinctly stated that during an attack of intermittent fever the uric acid and phosphoric acid are very much increased in amount, *and the urea and chlorine greatly diminished.* As Mr. Ringer states that "Dr. Parkes has supplied the entire literature in the paper, and has kindly examined it with care," we must suppose that he had himself never read this article of Dr. Hammond, which he several times cites as showing the same general results as those obtained by himself. It should be considered quite reprehensible to make a mistake of this character; an author who is worthy of being cited at all, should be cited with perfect correctness—his opinions ought not to be grossly misstated.

The physician to whom Mr. Ringer intrusted the care of supplying the literature of the subject for his communication, has not referred to the researches of Prof. Joseph Jones, of Augusta, Ga.

XXII. *Case of Paralysis as to Voluntary Motor Powers of the Limbs on one side of the Body, attended by Hyperæsthesia as regards the Impressions of Pinching and Pricking on the corresponding side of the Face; being the Results of Compression of certain Lateral Parts of the Brain from an Intra-Cranial Aneurism: with Observations on "Induced" Cerebral Paralysis.* By John W. Ogle, M.D.

Experimental physiology has proved that all the will-conducting fibres passing down from the brain to the voluntary muscles of the body decussate each other at the anterior pyramids. Clinical observation too has shown that injury or disease of one side of the brain leads to paralysis of the opposite side of the body.

There are, however, certain instances on record where more or less interference with the power of movement or of sensation on one side of the body has been found, after death, to have been dependent upon organic lesion of parts within the cranium on the side corresponding to the paralysis. The case reported in this communication is one of these exceptional cases. A married woman, forty-three years of age, who had enjoyed tolerably good health, began to suffer with pain at the front and vertex of the head, along with dimness of sight, and pain referred to the back of the eyes. This condition of things became worse, and at the end of about two years she became subject to epileptic seizures; in the course of another year the loss of sight was complete; the senses of smell and taste on the left side were impaired; there was partial loss of muscular power on the left side of the body; contractile hyperæsthesia of the skin of the left side of the face and head; and she finally died in a violent fit of epilepsy, about eight years after the first appearance of any cerebral affection. After death, an aneurism of the anterior cerebellar artery on the left side was found, compressing the left crus cerebelli, and the contiguous portions, to a slight degree, of the pons Varolii, cerebellum, and apparent root of the fifth nerve.

Brown-Séquard, who has collected fourteen cases similar to this of Dr. Ogle, where a tumour existing between the inferior surface of the middle cerebellar peduncle and the petrous portion of the temporal bone, produced an incomplete paralysis of motor power on the corresponding side of the body, explains the paralysis as one of an "irritative" character, and caused by an excess of action. Dr. Ogle accepts this hypothesis of M. Brown-Séquard, but prefers the term "induced cerebral" paralysis, to those of "reflected," or "sympathetic," or "active," or "immediate," made use of by that celebrated physiologist. It is supposed that in these cases the irritative action is carried, by the intervention of commissural fibres, from a given point to another part of the brain, and there induces a repressive or inhibitory action of some kind or other of motor nerve fibres. The papers of M. Brown-Séquard on this subject are contained in the third and fourth numbers of his *Journal de Physiologie*, for 1858; they are entitled "*Recherches sur la Physiologie et la Pathologie de la Protubérance Annulaire.*"

This communication is accompanied by a plate, representing the aneurism and the parts about the base of the brain.

XXIII. *The Sequel of a Case (published in Volume XLI. of the Transactions of the Royal Medical and Chirurgical Society) of Lithotrity, in which a Communication existed between the Bladder and Intestine.* By CHARLES HAWKINS.

The last volume of *Transactions*, an abstract of whose contents was published in the number of this journal for July, 1859, contained a communication (the XIXth), giving an account of a case, in which a communication existed between the bladder and intestine, where a calculus had formed in the bladder, which Mr. Hawkins had removed by lithotrity. The present communication gives an account of what was found at the post-mortem examination. The patient, it may be stated, continued to pass fecal matter occasionally with his urine, but exhibited no symptoms of stone before his death, which occurred from a giving way of his general health.

An opening, of the diameter of a goose-quill, was found at the lower part of the posterior wall of the bladder, which was here intimately united to that part of the circumference of the sigmoid flexure of the colon that lies nearest to it. The aperture in the bladder communicated with the sigmoid flexure opposite their point of union. Below the communication between the bladder and colon, the canal of the intestine was greatly constricted, to the extent of an inch and a half in length, admitting a tube through it of the size of the little finger. This stricture appeared to depend upon great condensation and subsequent cicatrization of the submucous and muscular tissues at that point. The bladder itself was healthy, and did not contain any calculous matter.

XXIV. *A Case of Vesical Calculus of unusual size removed by the Recto-vesical Operation.* By GEORGE SOUTHAM.

The patient whose case is related in this communication, was a young man, twenty-one years of age, who had laboured under symptoms of stone for sixteen years. He was emaciated almost to a skeleton, unable to leave his bed, and suffered from a constant desire to empty the bladder. The urine was ammoniacal even within the bladder, and a very considerable quantity of albumen was precipitated by boiling and the addition of nitric acid. As the microscope, however, showed no casts of uriniferous tubes, nor any reliable indications of renal epithelium, it was very properly concluded that this albumen was simply deposited from the liquor puris, and the small quantity of blood always present, in the urine. By the aid of nutritious diet and the moderate use of wine, together with bicarbonate of potash, infusion of buchu, opium, and hyoscyamus, a considerable improvement in the condition of the patient was effected in the course of about three months, when it was decided to operate.

Chloroform was administered, and the patient was secured as for the lateral operation. About half a teacupful of warm water, which was as much as the bladder could hold, was injected. A scalpel guarded by the finger, was then introduced into the rectum, and the sphincter and lower part of the anus divided in the direction of the raphe. The staff was now felt for, and the urethra having been opened anteriorly to the prostatic portion, the scalpel was pushed forward along the groove towards the bladder. The finger having been carried into the bladder and the stone felt, the staff was withdrawn. As was suspected, the calculus proved to be of large dimensions. Accordingly the wound in the prostate was enlarged on its urethral surface, with a probe-pointed hernia knife. By means of the finger the rest of the prostate and neck of the bladder were sufficiently dilated to admit of a pair of forceps. The blades of the forceps had to be introduced separately in order to grasp the stone, which was thus extracted.

The calculus had a rough, uneven surface, irregularly oval, and measured eight inches in circumference in one direction, and seven in the other, having a diameter of two and a quarter inches, and being three and a third inches long. It weighed four ounces six drachms and twenty-five grains. A section showed it to consist principally of triple and earthy phosphates, in which was imbedded at one extremity, a small, round, alternating calculus, about three-quarters of an inch in diameter, consisting of lithic acid and oxalate of lime.

The patient made an excellent recovery; at the end of four months all signs of any fistulous communication between the rectum and the bladder ceased to make their appearance, and he was soon afterwards discharged, cured.

In some remarks appended to the history of this case, Mr. Southam enters into some consideration of the respective advantages of the various modes of cutting for stone. We do not find anything in them, however, that calls for particular mention. The operation performed by him in this instance, would be more appropriately called *recto-urethral*, than *recto-vesical*, as he states himself at the close of his remarks.

XXV. *On Different Forms of Primary Syphilitic Inoculation.* By Henry Lee.

In this communication Mr. Lee gives the history of five very interesting cases of syphilis, in which inoculation was practised.

In the primary infecting sore, according to Mr. Lee, the secretion contains no pus, it consists of epithelial débris, mixed, perhaps, with globes of different shapes and sizes, which are readily distinguished from pus-globules by the action of acetic acid. This secretion when introduced under the skin of the patient from whom it comes, produces no effect. When from irritation the sore becomes inflamed, inoculation sometimes may take place, but it is not easily performed, and the results are very different from those which follow the inoculation of the secretion from naturally suppurating sores. In the latter cases each puncture produces a pustule, which, by repeated inoculation, will produce its like a great number of times. In the former, the inoculation, as a rule, fails, and succeeds only under circumstances of accidental irritation. It then can be repeated a very limited number of times, and the results obtained, even by a number of punctures in one situation are comparatively of a trifling description. There is, however, as Mr. Lee says, reason to believe that these same inoculations, if practised upon a patient whose system was not already affected with syphilis, would give rise to well-developed primary infecting sores.

There are a number of other points in regard to the secretion from syphilitic sores, indicated by Mr. Lee in this communication, which is altogether one well worthy of an attentive perusal by those interested in the study of venereal affections.

Two beautifully-executed coloured plates illustrate this communication.

W. F. A.

Art. XXVI.—*On the Diseases and Injuries of the Joints.—Clinical and Pathological Observations.* By Thomas Bryant, F. R. C. S., Assistant Surgeon, Surgical Registrar, and Lecturer upon Operative Surgery, at Guy's Hospital. London: Jno. Churchill, 1859, 8vo. pp. 273.

In the volume before us, Mr. Bryant has presented his readers with a concise and intelligible description of the various affections of the joints. The treatise is one which has been long needed; for despite the attention which has been devoted to articular diseases, and the numerous observations and lectures which from time to time have appeared, there has always existed a certain amount of confusion, not only in the diagnosis of these complaints, but also in the description of the pathological changes of the parts. The investigations of Sir Benjamin Brodie have already done much to clear away this obscurity, and we are now glad to find that the researches of Mr. Bryant have been conducted in that spirit of philosophical investigation which cannot fail to be productive of useful results.

In the examination of the diseases of the joints, the plan adopted by the author is a sufficiently simple one. He has in the first place considered each articular affection separately, and noted the changes which have been produced in the individual structures. The general effect upon an articulation, and the tendency towards its disorganization as influenced by diseases of its component parts, forms, then, the subject of a special investigation. Passing over our author's general remarks upon synovitis, we would draw the attention of our readers for a moment to his chapter on the pulpy and gelatiniform disease of the synovial membrane. It will be remembered that Sir Benjamin Brodie has long since separated from the ordinary forms of chronic inflammation, those cases in which there is a marked tendency in the synovial membrane to take upon itself morbid changes, and to degenerate into a "brown, pulpy, soft mass, of considerable thickness, intersected by membranous lines." Many of these latter cases, however, our author thinks may with propriety be referred to the head of chronic inflammation. The true pulpy degeneration he regards as entirely independent of inflammatory symptoms, and seems to look upon the villous growths met with in the cavities of joints thus affected, more in the light of fibro-plastic tumours, than as the result of acute action. The distinction between these two varieties of disease, if varieties they be, seems thus to rest simply upon the absence or presence of inflammatory symptoms. As to the origin of this pulpy degeneration, we are told that "the synovial membrane is stimulated to produce within its structure the simplest elements of all growths; fibro-nucleated tissues, although the action which attends their development, is too feeble to give rise to symptoms sufficiently marked to enable us to class it amongst the inflammatory diseases. It is so unlike all other morbid actions in the body to see a membrane producing new growths, composed of such simple elements, and not being the result of inflammatory action, that it appears more rational to believe that this pulpy disease is merely the result of this same action, modified by some peculiar constitutional tendency, than that it is essentially a new product of a specific disease."

The symptoms of the approach of the gelatiniform disease of the synovial membrane dependent upon an inflammatory process are described to be—acute symptoms, pain, the ordinary swelling of synovitis, and if the patient have suffered from repeated attacks at intervals—uniform enlargement of the joint; if of the knee, unnatural projection between the bones, and stiffening of the articulation, and occasionally even suppuration and destruction of the joint. The symptoms of the approach of the true pulpy degeneration are much less marked. They are local, and negative rather than positive—as for example, gradual enlargement, stiffness, occasionally a dull pain, and the absence of distinct inflammatory symptoms.

The chapter on the articular cartilages disposes of the diseases of these structures under five heads—hypertrophy and atrophy, granular, fatty, and fibrous degeneration. The occurrence of the first of these affections, hypertrophy of the articular cartilages, is, however, somewhat problematical, as in all of those instances in which it has been reported to have been met with, other disease of the joint has been present, and the enlargement of the cartilage has been most probably due either to swelling, or to one of the other forms of degeneration. Granular degeneration, or as it is more frequently described, ulceration of cartilage, is to be distinguished from the true fatty degeneration by the difference in the order of the pathological changes. In the former the cartilage cells first assuming a granular appearance, whilst in the latter, occurring most frequently in joints deprived of their natural function, a distinct formation of fat globules in the interior of the corpuscles may readily be detected. In this connection we would mention that Mr. Bryant entertains the opinion as the result of pathological observation, that the cartilages are covered by synovial membrane, an opinion from which we must confess we dissent.

The chapter upon the diseases of the articular extremities of bones is one replete with interest. The strumous deposit so frequently spoken of by surgeons as occurring in the so-called scrofulous disease of a joint, is regarded by our author as a pathological curiosity, and the majority of cases described as scrofulous affections of the articulations are by him referred, and we think justly, to the presence of chronic inflammation.

Chapter eight is occupied with the discussion of true and false anchylosis, and is profusely illustrated with cases. The operation of tenotomy in partial and false anchylosis is considered at some length, and we are glad to observe that its application is restricted to those cases in which mechanical means alone are inefficient to accomplish a cure.

The much vexed topic of "amputation or excision" is the next subject to which our attention is directed. When the joint diseased be one of the upper extremity, there can be little doubt that the most favourable operation is excision. On the lower extremity, however, and especially with regard to the knee, the case is somewhat different; here amputation seems to afford the better chance to the patient, save in those cases where the disease is limited strictly to the articular extremities of the bones.

In disease of the tarsal bones, Chopart's amputation is strongly recommended, and we are told that generally an admirable stump is left. For our own part, we are hardly willing to yield such unqualified praise to that operation; as our observation of a considerable number of individuals upon whom it has been performed, even with section of the tendo-Achillis, has led us to believe, that practically the results of this amputation are not of the most flattering character.

For the removal of foreign bodies from the joints, especially of the knee, the subcutaneous operation is of course presented to us, and at the same time the proceeding of Mr. Syme is earnestly recommended in those cases in which difficulty may be experienced in taking the cartilage out of the joint into the cellular tissue. The terminal section of this division of Mr. Bryant's work, is occupied with the consideration of bursitis, and of inflammations external to the joint. We are also presented with an interesting analysis of 974 examples of diseased joints, admitted into Guy's Hospital during the five years ending on Christmas, 1858.

In the second portion of his work, the author proceeds to the investigation of the injuries of joints, including wounds, fractures into joints, and simple and compound dislocations. As in the other portions of the volume, the clinical illustrations are principally derived from the wards of Guy's Hospital. Many of these cases are given in detail, and among them, we observe some of unusual interest. The remarks on the surgery of the phalangeal joints at page 212, seem to us to be well worthy of study; the more so, as these topics are generally most summarily dismissed even in the more systematic treatises in injuries. At page 227 we are furnished with a novel plan for effecting the reduction of a dislocated humerus, after failure of the usual method of treatment.

The patient, a man, æt. 32, under the charge of Mr. Cock, had dislocated the head of the humerus downwards. The ordinary attempts at reduction had failed of success, chloroform having been given, and extension at all angles having been made without benefit. An air-pad of vulcanized India-rubber was then placed in the axilla, and the arm was tightly bandaged to the side. By these means the pad was made to exert a strong outward pressure upon the head of the humerus. On the third day when the bandage was removed, the head of the bone was found to have returned to its socket, although the patient was unconscious of the sudden snap usually indicative of the return of a luxated bone to its position. In this case our author tells us that it is probable no such sudden movement had taken place: it being more likely that the capsular ligament pressed upon by the head of the bone, at last gave way, and permitted the humerus to regain its normal position.

The chapter upon dislocations of the hip, illustrated with nineteen cases, is one of the most complete in the book, and we regret that we cannot enter into any analysis of it. In taking our leave of this unpretending little volume, we must express the pleasure with which we have perused it, and we trust that at some future time, the author of the pages we have thus hastily scanned, may furnish us with still more extended and complete observations on the pathology and statistics of so important and interesting a class of affections. J. H. B.

ART. XXVII.—1. *The Anatomy of the Human Lung;* an essay, for which was awarded the Fothergillian gold medal of the Medical Society of London. By A. T. HOUGHTON WATERS, Member of the Royal College of Physicians of London, &c. &c. London: John Churchill, 1859. pp. 233.

2. *On the Intimate Structure, and the Distribution of the Bloodvessels of the Human Lung.* By A. T. H. WATERS, M. R. C. P., &c. (From the Proceedings of the Royal Society for May 26, 1859. Communicated by Dr. Sharpey.) pp. 12.

LABOURS in this direction are far from being works of supererogation. Minute anatomy has but commenced its labours; and there is, perhaps, no one important viscus which may not profitably be made, at the present time, the subject of new investigations. In all these cases the incomplete state of our knowledge is not, as some suppose, owing to the imperfect condition of the optical instruments which have become necessary to this branch of research; rather is it, at least in the vast majority of cases, the result of the difficulties which surround the primary procedures by which the tissues submitted to study are prepared for the microscope. And it is precisely because the difficulties are of this character, and therefore likely to be overcome by the inventive abilities of individual observers, that so rich a field is here opened to minute anatomists.

In the case of the lung a number of unsettled points are presented for investigation. Prominent among these is the question of the existence of an epithelium in the air-vesicles of the lung, and that of the precise anatomical relations of the bronchial to the pulmonary arteries. Of these questions the first, apparently insignificant in itself, swells to very considerable proportions in consideration of that doctrine of pulmonary tubercles now in the ascendant, originated by Schrœder van der Kolk and indorsed by Virchow and Paget, according to which these bodies are believed to result from certain metamorphoses of the cells of the epithelium of the air-vesicles; a doctrine which at once loses all probability of truth if it can be shown, as taught by Rainey, Todd, and Bowman, that no such epithelium exists.

The first of the two papers above named contains the results of a series of carefully made original studies of the external and microscopical anatomy of the lung. The second contains a summary of the author's conclusions upon the prominent disputed points, and is a mere abstract of the more novel matters presented in full by the first.

A careful perusal of these papers has satisfied us that the author deserves every credit for the patience with which he has pursued his studies, for the clearness of his descriptions, and the care devoted to the obscurer parts of the matter; so that although the essay is very far from exhausting the subject, it yet presents much that is of great general interest, and may be regarded upon the whole as a valuable contribution to the literature of this portion of human anatomy.

It would be vain to expect a writer on minute anatomy at the present day to fulfil his task without the introduction of at least some new names, and accordingly in the description of the minute arrangement of the ultimate pulmonary tissue we find our author bringing forward his quota to add to the already confused nosology of the subject. The following extracts from the paper read before the Royal Society will sufficiently indicate his views of the lung structure:—

"The bronchial tubes of the lungs, after several divisions and subdivisions, which for the most part are of a dichotomous nature, terminate in a dilatation into which open a number of elongated cavities, which constitute the ultimate expressions of the air-tubes. These elongated cavities, to which various names have been given, I propose to call *air-sacs*, as being, in my opinion, more appropriate to their shape and arrangement than any term hitherto used; and the series of air-sacs connected with the extremity of each bronchial twig, with its system of bloodvessels, &c., I shall call a *lobulette*." "Each lobulette consists of a collection of air-sacs, which vary in number from six to eight, ten, or twelve."

"The air-sacs are somewhat elongated cavities," the walls of which "have in them a number of small, shallow, cuplike depressions, separated from each other by portions of membrane which are more or less raised and project into the interior of the sac." These depressions are called "*alveoli*," a term adopted by our author from Rossignol.

The portions of pulmonary tissue designated as "air-sacs" by Mr. Waters have been especially successful in obtaining names; thus they have been called "intra-lobular bronchial ramifications" by Addison, "lobular passages" by Todd, "intercellular passages" by Rainey, "infundibulums" by Rossignol, "Malpighian vesicles" by Moleschott, and "terminal cavities" by Mandl.

Mr. Waters' descriptions of these parts present little that is novel except the two new terms "air-sacs" and "lobulettes;" but the accounts he gives are so evidently drawn from direct observation, they are so clear, and so readily understood, that his book becomes at once of considerable value to all who desire to acquire accurate information of the present state of knowledge on this subject. It has also another, and we may say a higher value than this; it contains the views of a careful and independent observer on the one side or the other of the several disputed points presented by the subject, and it is therefore a new step on the road towards the ultimate determination of the truth of the matter. Among these disputed points perhaps the most interesting is that of the existence of an epithelium lining the air-cells. (The air-cells or air-vesicles of most of the text-books are the "*alveoli*" of the "*air-sacs*" of Mr. Waters.) On this head Mr. Waters adds his testimony to that of Mandl, Kölliker, Rossignol, and others: he says:—

"From careful and repeated examination of a very considerable number of specimens of the lungs of man, and various mammals, I have perfectly satisfied myself of the existence of an epithelium in connection with the walls of the air-sacs." The cells of this epithelium, though much smaller, are described as resembling those of the ordinary pavement epithelia. It is admitted on all sides that the ciliated epithelium of the bronchial tubes terminates at the point where they open into the *air-sacs*.

Another point at present disputed is the precise distribution of the bronchial arteries and their relation to the pulmonary vessels. Thus, for example, contrary to the general opinion, Dr. Heale expressed to the Royal Society of London his belief that the bronchial arteries "do not supply in the smallest degree any portion of the *bronchial mucous membrane*."

As to this Mr. Waters states in his "conclusions:"—

"The *bronchial arteries* distribute their blood to the bronchi, the bronchial tubes, the vessels and areolar tissue of the lungs; the branches that enter the lungs pour their contents into the pulmonary veins."

His observations on the condition of the fœtal lung before birth possess very considerable interest; but it must be confessed the article on "the development of the lungs" throws no new light on this obscure subject.

It is a very great addition to the value of this book that it contains a detailed account of the processes made use of by the author in his investigations. Too often original observers omit all mention of their manner of working, which would otherwise serve as the starting-point of new studies.

Mr. Waters' book, however, is infinitely superior to the wood-cuts with which it is illustrated; these are truly execrable, especially those marked original, and in the verbal description which is appended to each, the author invariably omits to mention the magnifying power employed. J. J. W.

ART. XXVIII.—*Report on the Health of the Waterguard and Waterside Officers of Her Majesty's Customs during* 1858. By J. O. McWILLIAM, M.D., F.R.S., C.B., R.N., Medical Inspector of Her Majesty's Customs. London, 1859.

THE report before us, for a copy of which we are indebted to the author, was presented to the Parliament of Great Britain in the spring of 1859, in connection with the Third General Report of the Commissioners of Customs.

Dr. McWilliam gives a highly favourable account of the health of the officers of customs stationed at the docks and along the wharves of London, during the year 1858, as well in relation to previous years as in comparison with other bodies of men.

The number of cases from the waterside and waterguard services admitted to medical treatment was, we are told, 1,118 in 1857, but only 941 in 1858. The daily average of sick was only 20.69 in the waterguard, and 7.86 in the landing department, against 23.1 and 8.6, respectively, in the previous year. The deaths from all causes in the waterguard, which were 1.3 per cent. on an average of the previous eleven years, and 0.7 per cent. in 1857, had fallen to 0.49 in 1858. The mortality in the waterside department had slightly increased.

The small amount of sickness and the low rate of mortality that were observed among the tide-waiters and watermen of the British revenue service, during the year 1858, are curious and interesting facts on two accounts. In the first place, the number of deaths among the entire population of London, as shown by the report of the Registrar-general, was, for the year 1858, greatly above the average; and in the second place, the extreme heat of the weather during part of the summer, and the very offensive state of the river Thames, and the different docks on or about which the several revenue officers are constantly stationed, led to a general apprehension of a great increase of sickness among all who were exposed to these deleterious influences. But, from the report before us, we learn that the ordinary degree and kinds of illness were not only in no way enhanced by the influences referred to, but even underwent a marked diminution; and secondly, that the cases of bowel complaints, which are usually considered specially attributable to offensive miasmata, were even below the average during the period in which the weather was hotter, and the Thames more nauseous than on any previous occasion.

In presenting to our readers the substance of Dr. McWilliam's report, we shall follow, as far as a due regard to conciseness will admit, the language of the author.

Of the matters discharged from the sewers into the river Thames, part, it appears, floats upon the surface, part is at once precipitated, part is dissolved, and part is held in suspension. Of the latter a part is ultimately deposited after acquiring sufficient gravity by maceration. To the precipitation of the sewage mud, when the water is in a quiescent state, at the sides of the river, in what he calls "the retrogrades and brattice cesspools," Mr. Gurney is inclined to refer the pollution of the Thames.

Any body or material capable of flotation or suspension in the water of the river, as are parts of the sewage of London, undergoes a long process of upward and downward movement before being finally carried to the sea. The degree of upward oscillation is increased in proportion with the strength of the spring tides, while during neap tides the downward or seaward movement is the greatest. The extent of these movements upwards and downwards is modified by the various circumstances which influence the duration of the flood and ebb tides respectively, and by the part of the river into which such bodies are cast. Still, the ultimate result of the series of oscillations is a tendency seaward, which, although slow, probably not more than five miles in a fortnight, is certain. It is thus that a large quantity of London sewage, floated, dissolved, and suspended, finds its way to the sea.

In June, 1858, the river is described as presenting a most unusual appearance. Being of a dark slate colour, thick and turbid, and emitting a most offensive smell, particularly at low water, when the banks, more or less polluted from the contents of sewers, were acted upon by high temperature; and during the last two or three hours of the flood tide, when the water fully saturated with sewage and stirred up mud, was disturbed by passing steamers. This condition of the river lasted until about the middle of July, and in a less degree from then until the end of September, when the river resumed its normal state. In the London and the St. Katherine's docks the water was even darker coloured than in the river, in consequence of the thick black mud—mineral and organic—on the floor of the dock, the rapid precipitation of which was favoured by the comparatively quiescent state of the water within the docks. In the Surrey, Commercial, and East and West India docks, the stench was not at any time so great as to cause much complaint, but in both the London and St. Katherine's it was equal to that of the river.

The state of the river and docks during the months of June and July, 1858, was such as to excite considerable anxiety, and it was seriously apprehended that the metropolis was on the verge of a most pestilential endemic. Fortunately this dismal anticipation was not realized. While the emanations from the river and docks gave rise to much annoyance and just complaint, there was no reason, we are assured by Dr. McWilliam, for believing that they were productive of disease, most certainly not of those forms of disease which are generally ascribed to miasms evolved from water in a state of pollution, or from mud containing organic matter that is undergoing the various putrefactive changes.

The duties of Dr. McW. as medical inspector led him to watch closely for any unfavourable influence, which the condition of the river might exert upon the health of the revenue officers under his charge. The waterguard, in number upwards of 800, may be said to live on the river, or in the docks, in ships, or in barges and open boats; while the waterside officers, numbering upwards of 500, are employed during the day in the docks, or at the various wharves of the bonded warehouses on each bank of the river. Among the causes which, by lowering vital power and inviting disease, exert a prejudicial influence upon the health of the waterguard officers, are enumerated in the report before us, exposure to vicissitudes of weather by night as well as by day, irregular and often an unusual kind of diet, occasionally indifferent and sometimes very bad accommodations, and now and then long fasting. Among the causes which operate in the contrary direction, by increasing the power to resist morbific agencies, are included the circumstance that the duties of a large portion of the waterguard call them to Gravesend, and to various other distances down the river, where the atmosphere is comparatively pure; and, also, the salutary effect of discipline upon the life and general habits of the officers of this department.

To show relatively to other years the state of health among the different revenue officers, during the hot months of 1858, three tables are given, showing, 1st. The number of sick from all causes during the months of June, July, August, and September, 1855, '56, '57, and '58; 2d. The numbers daily sick; and 3d. The number of cases of bowel complaints for the same periods.

From these tables it appears that the total number placed on the sick list from all causes during the four hot months of 1858, although slightly in excess of those sick at the same period in 1855 and '56, was below the average of the three previous years, and considerably lower than in the year 1857, when the river and docks were certainly offensive, but far less so than in 1858. As respects bowel complaints, including diarrhœa, ordinary and choleraic, dysentery, etc., the types of those forms of disease commonly supposed to be produced by noxious exhalations, the additions from these during the hot months of 1858 were 26.3 below the average of the corresponding period of the three previous years, and 73 less than in 1857. The number daily sick was also below the average, although there were several cases of rheumatism, phthisis, and other disorders on the list during nearly the entire year.

Although it may be said that the number of persons from which these results are derived was too small to warrant any general deduction, still the experiment, upon, it is true, a contracted scale, was made under circumstances as free from fallacy as can well be in a case of the kind; and, so far as it went, was well calculated to test the alleged morbific influence of the river effluvium. Of the whole force—between 1,300 and 1,400—much the greater number were exposed to the effluvium at its very source and fountain head. No one could leave duty without his absence being accounted for, and any attack of disease necessitating absence was at once inquired into.

According to the reports of the registrar-general, the year 1858 was an unhealthy one for London; but the mortality in spring and summer was below the average, the excess of deaths having taken place in the six cold months. From the same source we learn that diarrhœa and summer cholera were, in London, "perceptibly less fatal than usual." In the three summer months of 1857, the deaths from the first of these complaints were 2,343, and from the second 177; while the respective numbers for the quarter ending September 30, 1858, were 1,391 and 90.

"While," Dr. McWilliam remarks, "it is not only admitted, but urged, that miasms and foul emanations, from whatever source arising, call for the immediate employment of every means of prevention or mitigation which science or art can suggest, and that the legislative and other investigations into the condition of the Thames during the summer of 1858 were fully demanded by the occasion; it is nowhere sustained by evidence that the stench from the river or docks, however noisome, was in any way productive of disease. On the contrary, there was less disease of that form to which foul emanations are supposed to give rise than usual." D. F. C.

ART. XXIX.—*On Excision of the Knee-Joint; illustrating the principal complications which are likely to arise after the performance of that operation, and especially the want of subsequent development and growth in the limb of the young subject.* By OLIVER PEMBERTON, Surgeon to the General Hospital, and Lecturer on Surgical Pathology at Sydenham College, Birmingham. Reprinted from the British Medical Journal. London, 1859, pp. 32.

EXCISION of the knee, in preference to amputation of the thigh, in cases of disease of the tibio-femoral articulation, has been for a number of years past, in England, an operation to which much attention has been directed, and upon which, in consequence, much has been written. The profession is, therefore, at the present time prepared to form certain conclusions in regard to it.

In a case where, from disease of the knee-joint which has resisted all his means of cure, the patient must soon die if the diseased parts remain, the surgeon is of course in duty bound to remove them, provided, as is always understood, the operation itself be not attended with too great risk to life. There are two ways in which this may be accomplished: the joint may be excised, or the thigh may be amputated. In making his choice between these two operations he should be guided by their safety, and also by their after results; that is to say, by the respective advantages of a stump, or of a shortened limb.

As regards the safety of the operation for excision of the knee, we learn from the recent publication of Mr. Price, from which we had occasion to quote in a notice of Mr. Sansom's "Mortality after Amputations," in the last number of this journal, that out of 160 cases of excision of the knee, collected from all British sources, both metropolitan and provincial, 32 died, or 1 in 5. Mr. Bryant, in a paper, an abstract of which was given in the July number of this journal for last year, informs us that out of 167 cases of pathological amputation of the thigh, performed at Guy's Hospital, 18 p. c. were fatal, or 1 in 5½. It should be added, moreover, that in amputations of the thigh for chronic disease of the knee-joint, or those in which excision might be thought of, only 1 case out of 7 proved fatal. Now, when we take into account the notoriously great fatality attending operations in a city hospital, we think ourselves right in concluding that excision of the knee-joint is at least equally fatal with amputation of the limb. We must not lose sight, moreover, of the fact that in 17 of the cases, marked as recovered from excision, amputation became afterwards necessary. So much for the safety of these operations; at least so far as we may judge from experience.

As regards the utility of the limb preserved by excision of the knee, we have had until now very imperfect means of coming to any definite conclusion. The information it affords upon this interesting question renders the publication before us, of Mr. Pemberton, one of considerable importance. It contains the detailed history of a case, in which the operation was performed by Mr. Pemberton, with an account of the condition of the patient six years afterwards, and also what might be called the ultimate condition of several patients who had been operated upon by other surgeons.

In the case of Mr. Pemberton, two inches and a half of the femur, and an inch of the tibia, were removed from a boy, twelve years of age. Eight months subsequently the wound had entirely healed, the union between the bones was of a ligamentous or fibrous character, admitting of free movement in any direction, the difference between the two limbs exactly corresponded to the amount of bone removed, namely, three inches and a half, and the patient could walk with the aid of a stick and a high-heeled shoe, the knee being supported by a leather case. Six years afterwards, Mr. Pemberton had an opportunity of examining his patient. He had grown in height and had thickened considerably in figure, but was somewhat diminutive for his age. The lower limbs presented a wonderful contrast in appearance; the one was strong, with the muscles, bones, and joints well defined; the other feeble and blighted. The sound limb, from the anterior superior spinous process of the ilium to the outer malleolus, measured thirty-four inches; the one subjected to the operation, twenty-five! There was, therefore, a difference of nine inches; or a deficiency in growth, as compared with the other, of rather more than five inches since the operation. The limb, Mr. Pemberton says, "could not be deemed otherwise than an incumbrance, and, with the best appliances to remedy the want of length, proving, after all, little better than a sad deformity."

Mr. Butcher, the well-known enthusiastic advocate of excision of the knee, in his memoir declares that it has been proved, by several instances, that the growth of the limb was not checked by excision of the joint in childhood. He quotes in support of this statement, among other observations, those of Dr. Keith, of Aberdeen, Mr. Page, of Carlisle, and Mr. Jones, of Jersey. Mr. Pemberton wrote to these gentlemen, and from what he learned from them, he concludes that "this most undaunted surgeon (Mr. Butcher) has, he fears, been led to adopt those conclusions in the question which his wishes and anticipations too clearly held in view."

Dr. Keith says, in his answer, that though when he had sent the history of his case to Mr. Butcher, three years before, no increase of disproportion in length had at that time taken place between the two limbs; yet now, three years afterwards, the operated limb, compared to the other, seems a mere appendage to the body; from the anterior superior spinous process of the ilium to the heel there is a difference of *seven inches* in the two limbs. This patient, at the time Dr. Keith wrote, was in his fifteenth year; at the operation only one inch and three-quarters of bone had been removed, and anchylosis had taken place.

In the case of Mr. Page, the patient was too old to judge of the effect of the operation upon the growth of the limb. From Mr. Jones no answer was received, on account of the letter having arrived at Jersey at the time of the calamitous fire in the General Hospital.

The case of Mr. Keith, however, together with his own, is sufficient to show that, whether anchylosis takes place or not, after the operation of excision of the knee in children under puberty, the growth of the limb is most seriously interfered with.

Excision of the knee must, therefore, as we learn from experience, be considered as at least equally fatal with amputation of the thigh; and in children, as leaving a limb which in the course of time will become an incumbrance. Most fortunate is it, therefore, when having such an alternative before him, as no limb at all, or worse than none, that the surgeon is able to rest assured that no operation whatever is necessary in the vast majority of cases, and that under proper care and attention almost any case of knee-joint disease in a young child will get well. It is much to be regretted, it is but right to add, both on their patient's account and on their own, that this has been so often forgotten of late years by British surgeons. Of course, as was said before, cases of disease of the knee-joint occasionally occur when, to endeavour to save life, the surgeon must remove the diseased parts; but these cases are exceedingly rare, and when they do occur, we ourselves should deem it preferable, both from motives of safety and on account of the ultimate result of the operation, to amputate at the thigh.

After having considered the effect of excision of the knee-joint upon the after growth of the limb, Mr. Pemberton proceeds to the narration of six other cases, in which he has performed the operation. Some of these cases exhibit the ordinary, and others the least frequent, complications by which it is attended. After their perusal, we cannot but express our astonishment that he could declare, as he does at the beginning of this publication, that "no surgeon, at all acquainted with the amount of shock, of hemorrhage, and other attendant circumstances of excision of the knee, will contend for one moment that the same danger to life in general follows its performance, as does amputation of the thigh." It would seem that his own personal experience, leaving aside that of the mass of the profession, should have prevented such a declaration.

In the first of these cases, the patient was a boy, seven years of age, whose left knee had been diseased for two years. The joint was excised, and the child died nineteen days after the operation of purulent infection. The second case was that of a boy, nine years of age, who suffered no pain on movement or on pressure; but the limb was useless, wasted, and in a semi-flexed position. In the hope of obtaining a more useful limb the joint was excised, and three days afterwards the patient died, having never rallied from the shock of the operation. It may be added that here, as in all the cases, chloroform was administered. The third case was a woman of thirty, who died three months after the operation, as it is said, under the wasting influence of diseased lungs. At the post-mortem examination, where the operation had been performed, pus was found burrowing its way in all directions. The fourth case was a girl, seventeen years of age; the operation here does not seem to have afforded much, if any, relief, and when she left the hospital, ten months afterwards, the soft parts over the tibia were swollen and thickened, containing one or two sinuses, and the thigh-bone, as high as the trochanter, was greatly enlarged, and had three or four sinuses leading to it. The fifth case was a man, twenty-seven years of age, who, after nearly losing his life from arterial hemorrhage from the slipping of a ligature from the superior external articular vessel, left the hospital on crutches, the joint incased in a splint, in a most unsatisfactory condition, to have the benefit of fresh air, four months and a half after the operation. The last case was a boy of thirteen; in this, at the expiration of eight weeks, the wound was completely closed, and the bones had become firmly anchylosed.

Surely, after the perusal of these cases, it is strange that any one in whose hands they had occurred should feel inclined to advocate excision of the knee. We have no hesitation in declaring, moreover, that in no one of them can we consider the operation for the removal of the diseased parts to have been imperatively demanded. The second case, particularly, can scarcely be read without a shudder; the patient was suffering no pain, all acute disorder had subsided, he was walking on crutches and had done so for years, but "*at the urgent request of the boy's friends*" a most dangerous operation is performed, and in three days he is dead. The friends may plead the excuse of ignorance in a case like this; but what answer can the surgeon, upon whom the whole responsibility of an operation rests, give to himself? Whenever we see the plea, unhappily a most common one, that such an operation was performed on account of the solicitations of a patient, or of his friends, we invariably think of the old French proverb, *qui s'excuse, s'accuse*.

We heartily thank Mr. Pemberton for the information he has given us in this little publication, which is ably written, and neatly illustrated by several wood engravings. W. F. A.

ART. XXX.—*On the Coagulation of the Blood in the Venous System during Life.* (A Thesis for a Medical Act in the University of Cambridge.) By GEORGE MURRAY HUMPHRY, M. D., F. R. S., etc. etc. Macmillan & Co., Cambridge and London. 1859. 8vo. pp. 42.

IT is well known to those who are much in the habit of making post-mortem examinations, that it is often a matter of much difficulty to determine whether coagula found in the bloodvessels have been formed before or after death. When the fatal disorder has been an exhausting one, and the dissolution gradual, so that there has been in the latter stages a failure of the powers keeping up the circulation, the clots are apt to be extensive and fully formed. And from an analogous condition of things, but insufficient in degree to destroy life, an analogous phenomenon may arise in those portions of the vascular system where the current of blood is moved with least energy. Such an occurrence, in Mr. Humphry's opinion, is not unfrequent; he details a number of cases in illustration of it.

The first of these cases is a very interesting one. A medical man was recovering from an exhausting attack of pleurisy on the right side, when uneasiness and stiffness came on in the left groin, and gradually extended down along the whole course of the veins of the limb, which became œdematous; after a time the symptoms subsided, but commenced in the other limb, the popliteal vein being the starting-point, and the lesser saphena and femoral veins becoming involved. This was in 1843. Similar but slighter attacks followed two subsequent illnesses in the same patient; typhoid fever in 1846, and pleurisy on the left side in 1851.

Mr. Humphry attributes the formation of these clots to "a preternatural tendency to coagulation in the fibrin." He thinks that they are altogether unconnected with inflammation, and unproductive of it; moreover, from the smooth exterior they present, except where adherent to the inner surface of the vessel, he is somewhat inclined to doubt Virchow's embolic theory.

With regard to the preternatural tendency to coagulation, above alluded to, our author explains it upon the view defended by Dr. Richardson in his essay on the cause of the coagulation of the blood. "The fibrin," says he, "is held in solution by the presence of ammonia, and its tendency to coagulate in the body is increased, and its coagulation out of the body is accelerated by a diminution of the volatile alkali of the blood; and it is quite probable that, in the cases which we are discussing, an insufficient quantity of this solvent medium is one of the proximate causes leading to the clotting of the blood in the vessels." Following out this idea, Dr. Humphry recommends the administration of ammonia where a predisposition to the formation of clots seems to exist. But, in the first place, while the merits of Dr. Richardson's essay are very highly estimated, his conclusions have by no means met with unqualified assent; and in the second place, we are uninformed as to the precise circumstances which indicate the tendency to the formation of clots.

The second part of this essay is allotted to coagula formed in the pulmonary artery. Seven cases in which these were observed are related; in three of these instances death was directly traceable to the presence of the coagula. A remarkable fact is that life could be maintained at all with such obstructions in so important a canal.

Clots in the cerebral sinuses are next considered, and an illustrative case given, in which no other cause of death could be clearly assigned. We are tempted here to allude to an autopsy recently made by us, in which, among other morbid appearances, the basilar and right carotid arteries with their branches were distended with tolerably firm reddish clots. The aspect and consistence of these coagula were such as to indicate that they had been formed for some time previous to death; the vessels containing them were atheromatous. Although not altogether relevant, this case may perhaps be of interest as complemental.

Lastly, Dr. Humphry speaks of the clotting of the blood in the cavities of the heart; relating the case of a girl eleven years of age, whose death took place from this cause while she was undergoing treatment for a severe burn. He takes occasion here also to allude to the mode of formation of coagula in the heart and large vessels after death, the fibrin accumulating at the periphery so as to form a tubular sheath for the later portion of the clot.

The subject of this very interesting essay has, as its author remarks, attracted a good deal of attention of late years; it is, however, one which is very apt to be overlooked, in the making of post-mortem examinations as well as in clinical practice, on account of the greater relative importance assigned to changes in the other viscera. Dr. Humphry's pamphlet will, we hope, be of use to a great many observers, by inducing them to investigate more closely the pathological changes of which it treats.

A paper on "Obliteration of the veins, and its influence in the production of partial dropsies, with considerations in regard to passive dropsies in general," published by Bouillaud in 1823 in the *Archives Générales de Médecine* (first series, vol. ii. p. 188), may be read with interest and advantage in connection with the one which has formed the subject of this notice. J. H. P.

ART. XXXI.—*The Action and Sounds of the Heart: a Physiological Essay.* By GEORGE BRITTON HALFORD, M. D., Member of the Royal College of Physicians of London, etc. London: John Churchill, 1860. pp. 47.

DR. HALFORD'S pamphlet has for its object the solution of one of the most vexed questions in physiology. It is divided into two parts: one on the action of the heart, the other on the cause of its sounds. The author starts with the objection to the results obtained by previous inquirers, that all observers, from Harvey downwards, have first removed the pericardium, the effect of which is to give to the heart an unequal and uncertain motion. In prosecuting his researches, the viscus was exposed without injuring the pericardium, and its movements studied through the transparent membrane. The experiments were made on asses and dogs, and they led to the conclusion that there exists a compensation between the auricles and ventricles; and that although the cavities of the organ are constantly receiving and discharging their contents, their movements are so regulated that the bulk of the circulating fluid inclosed by the pericardial sac is always the same. When the pericardium is removed the contractions appear more forcible, and the sounds are much louder, from which it is inferred that the membrane regulates the movements of the organ it surrounds. Of the impulse, and the functions of the auriculo-ventricular valves, it is stated that the first is systolic, and that the valves are closed before and independently of the ventricular systole. To explain it in the words of the author: "The auricles contracting on the blood, the force of their contraction is transmitted by the blood in all directions, separating the flaps of the valves, distending the ventricles, and (the semilunar valves being shut down) pressing as much upwards and backwards as downwards and onwards. The force, not being sufficient to raise the semilunar valves, is expended in distending the ventricles, and raising and closing the auriculo-ventricular valves." Respecting the action of the papillary muscles during the ventricular systole, it is held that by contracting simultaneously with the ventricles they keep the auriculo-ventricular valves in position, and prevent their eversion into the auricles. This view is identical with that of John Hunter, and similar to the one defended by Weber in his notes to Hildebrandt's Anatomy.

In the second part of the pamphlet the author criticizes with ability the opinions of those opposed to the theory of the valvular origin of the heart's sounds. That the second sound is owing to the flapping back of the valves at the aortic and pulmonary orifices is nowadays the creed of the majority of intelligent physicians. But concerning the first, the opinions are as diversified and the arguments as plentiful as they are on the merits or demerits of special schools in painting, or of any subtle questions in metaphysics. Dr. Halford enters the list strongly in favour of the valvular origin of the sound. He interrogates the hearts of birds and snakes, and finds the sounds to differ according to the construction of the organ, especially according to the size and strength of the auricles, and the differences in size, shape, and structure of the auriculo-ventricular valves. He exposes the heart in dogs, and compresses the great veins that pour their blood into it with a pair of bull-dog forceps, and both sounds cease. He removes the pressure: they return. From his experiments, and the teachings of natural science, he therefore concludes that the first sound is exclusively due to the tension of the auriculo-ventricular valves by the backward pressure of the blood; an opinion emitted, if we mistake not, by Rouanet, and which certainly is ingeniously sustained by Dr. Halford.

J. DaC.

Art. XXXII.—1. *Series of Clinical Cases (with Observations) illustrating the Views recently put forward by Dr. Brown-Séquard, as regards certain points connected with the Physiology of the Nervous System.* By John W. Ogle, M. D. Oxon, F. R. C. P., Assistant Physician to St. George's Hospital, Secretary to the Pathological Society of London. pp. 15.

2. *Cases brought before the Notice of the Pathological Society of London.* See *Transactions*, Vol. X. By Dr. John W. Ogle. pp. 32.

3. *The Diaphemetric Compass; an Instrument for measuring the Degree of Discriminative Power, as regards Contactile Impressions, enjoyed by the Skin and Mucous Membranes in certain Affections of the Nervous System.* By John W. Ogle, M. D., etc. pp. 11.

1. Even had Dr. Ogle not been already known to the profession as an able observer and writer, the first of the above-named memoirs would have commanded attention, from the great interest attaching to Dr. Brown-Séquard's researches. Many a reader will be glad to meet with a clinical exposition of the principles lately developed by this able physiologist, who, from various circumstances, would be unable to follow the different steps by which they have been reached. And even those who have been familiar with the experimental procedures and their results, upon which those principles are based, will be interested to find that bedside observation goes to confirm the conclusions arrived at by means of vivisections practised upon the lower animals.

Dr. Ogle thinks that his cases tend most materially to corroborate the following views:—

"(*a.*) That the posterior columns of the spinal cord do 'not' form, as was thought by Longet and many other observers, the means for the entire (*en totalité*) conduction of sensitive impressions to the brain; but

"(*b.*) That these columns form a medium to a slight extent only for the passage of sensitive impressions; such conduction along the spinal cord chiefly occurring in the central or gray matter of the cord, into which part the fibres of the posterior sensitive roots of the nerves, by means of transverse, ascending, and chiefly descending fibres, find their way almost immediately after gaining the cord, *viâ* the posterior columns, the posterior gray cornua, and, in part, the lateral columns. And that if there be any fibres conducting sensitive impressions ascending from the trunk or limbs along the entire length of the cord, their number must be very inconsiderable.

"(*c.*) That the fibres conveying sensitive impressions to the brain do not at any rate decussate at a point higher up in the cerebro-spinal axis than the pons Varolii.

"(*d.*) That the decussation of fibres conveying sensitive impressions must be of necessity not only at a part below the level of the upper margin or central part of the pons Varolii, but even for the most part, if not entirely, below the medulla oblongata itself. That is to say, this crossing or interlacement of sensory nerves must take place in the spinal cord itself, and that not in any particular spot, but in *every* portion of the cord, almost immediately after the entrance therein of the afferent fibres.

"(*e*.) That all the motor or efferent fibres decussate at a distinct point immediately below the pons Varolii—that is to say, at the anterior pyramids and the neighbouring parts—contrary to the views of Valentin, Cruveilhier, Longet, Foville, etc."

The first of the cases mentioned is that of a man, æt. 62, in whom a dislocation of the sixth cervical vertebra forwards caused the seventh to encroach upon the anterior portion of the spinal cord, the posterior columns remaining uninjured; and yet there was on the thirty-second day entire loss of sensibility as well as of motion in the lower limbs. Numbness and loss of power in these members had come on at about the third day. The exact period during which this want of sensibility lasted is not stated.

In the second case very firm malignant growths sprang from the dura mater, at the borders of the foramen magnum, in a woman, æt. 49; the foramen was so much blocked up as hardly to admit the tip of the little finger, and of course the white portions of the cord were subjected to severe pressure. Loss of power was observed first on one side and then on the other, but the skin retained its sensibility to pinching and pricking up to the very last.

The third case was one of accidental injury, the sternum and the body of the first dorsal vertebra being fractured, the latter, however, without displacement. Some blood was effused outside the membranes, opposite the last two cervical and the first dorsal vertebræ, and in this part of the cord the anterior columns and the gray matter were softened, the posterior columns remaining intact. The sensibility of the skin of the legs, although much blunted, had never been wholly lost.

Case fourth was that of a girl, æt. 18, in whom a cyst of some size occupied the right portion of the pons Varolii. In the *left* arm, leg, and side there was great loss of motile power and of sensibility to pricking and pinching. On the *right* side of the face and nose, and on the temple of the same side, there was numbness and diminished sensibility of the skin; and the conjunctiva of the right eye was unduly vascular.

The fifth case was not very fully recorded, and is introduced for the purpose of being further elucidated.

In the sixth case "two large rounded masses of firm scrofulous (?) material" occupied, one the centre and posterior part of the right portion of the medulla oblongata, projecting up into the fourth ventricle, the other the upper and right portion of the pons Varolii. The posterior parts of the crura cerebri were also softened, and one or two small scrofulous (?) deposits were met with in the posterior parts of the cerebral hemispheres. The patient, a girl æt. 18, had for about a year had numbness and coldness of the left arm and hand, headache, and oscillation of the eyeballs.

The seventh and last case is one of injury, a man æt. 28 having sustained a dislocation of the fourth and fifth cervical vertebræ, with laceration of the spinal cord, chiefly affecting the right side and the central portions of it; softening ensued. Motility was lost in both legs at the end of two hours, and sensibility to touching or pinching soon afterwards ceased not only in the legs, but in the right forearm. Priapism also existed. Death took place in seventy-two hours.

A mere glance will suffice to indicate the bearing of these cases upon the propositions which they are intended to illustrate. Several excellent wood-cuts add much to their value.

Dr. Ogle concludes this paper with some apt remarks in reference to the common defects in the mode of recording medical observations, saying, most truly, that accounts otherwise valuable are often rendered useless by omissions or vague expressions. He thinks that, in the present improved state of physiology and pathology, we are both enabled and called upon to use more care and precision in the clinical and *post-mortem* study of lesions of the nervous system than was formerly the custom. We should be glad to present a *resumé* of these remarks, but they are so condensed that it would be tantamount to quoting them entire.

2. In the second collection of cases named in the heading of this article we find matter of great interest. Five of the cases occurred in the human subject, and one in the horse; four of the former concerned the brain or its nerves, and the remaining one was an aneurism of the subclavian artery.

The first two of these cases, among other phenomena, presented abscesses within the brain-mass, and obstruction by blood-clots, to a greater or less extent, of the intra-cranial venous sinuses on the corresponding side. Dr. Ogle argues that the abscesses were *determined*—a different word from *caused*, and here as often elsewhere much more rational—by the hindrance to the return of blood from the brain; supporting his view upon grounds so substantial as to call for its further consideration. One of his foot-notes is of such importance that we are tempted to transcribe it:—

"I would here allude to the *in*frequency with which the various cranial sinuses are examined in *post-mortem* examinations. The superior longitudinal one should habitually be examined immediately on the removal of the skull-cap, and before the dura mater is divided; and the other sinuses after the removal of the brain. I may be, perhaps, pardoned for here alluding also to a common error often fallen into, and that is the examination of the organs of the chest before that of the cranial contents, a procedure which of course allows, to a great extent, of the emptying of the cranial veins and sinuses."

The third case was that of a boy, æt. 13, an epileptic, who died in consequence of extensive burns. He had always had a deficiency in temperature and in voluntary power on the left side, and the autopsy disclosed a very remarkable atrophy of the right hemisphere of the cerebrum, as well as of the left lobe of the cerebellum. The appearance of the brain is shown in a coloured lithograph. Both lateral ventricles were dilated, the right one enormously so; degeneration of the brain-substance, to a striking degree, was detected by microscopical examination.

Fifth in this series stands the case of a man servant, æt. 36, who had had ptosis on both sides, immobility of both eyeballs, dysphagia, and loss of power over the muscles of the mouth and upper extremities. Respiration was much impeded, and he ultimately died of apnœa. Disease of the upper surface of the sphenoid bone, supposed by Dr. Ogle to have been of a rheumatic origin, was the only morbid appearance detected by dissection, except fatty degeneration of the muscles in each orbit.

Dr. Ogle's case of right subclavian aneurism (he spells it aneur*y*sm, we think somewhat pedantically) presents several points of interest. The tumour attained an enormous size, and the ends of the fingers became clubbed and cyanotic. Sensibility and motile power were lost in the arm, evidently from pressure upon the axillary nerves. "The first rib was very greatly carious, and was partly, as it were, lying surrounded by blood-clot, within the aneurysmal sac." In the July number of this journal for 1858 we reported a case in which the upper piece of the sternum was found thus lying in the cavity of an aneurism of the aortic arch; in that case also the tumour had rapidly attained a very large size.

One case in this series remains to be noticed; it was that of a horse affected with "roaring," whose laryngeal muscles were found to be atrophied on the left side. In connection with this phenomenon, Dr. Ogle remarks on the modifications of the voice, cough, etc., of man, which may arise from paralysis of the laryngeal nerves; the recurrent laryngeal, he thinks, is the one most frequently affected in this way.

3. The diaphemetric compass described by Dr. Ogle is regarded by him as an improvement upon the means hitherto proposed, by Weber, Sieveking, and others, for the purpose of indicating the degree of tactile sensibility possessed by the skin of any part. It is about 4½ inches in length, and consists of a pair of mathematical compasses or dividers, one leg having a dial-plate at its upper extremity. Behind the centre of this dial-plate is a toothed wheel, carrying the indicator; a pinion attached to the other leg of the instrument turns the wheel, and the extent of the separation of the two legs will be shown by the motion of the indicator on the dial-plate. The working of the arrangement is obvious.

Dr. Ogle introduces his description of this instrument with a brief but interesting sketch of the researches of Weber, Allen Thompson, Lefévre, and others, upon the subject of tactile sensibility. But, with a candor not invariably displayed by inventors, he admits that these inquiries are possessed of but a limited degree of importance in a clinical point of view; the observer being often completely baffled by the mental state or habits of inattention, or even by the sheer stupidity, of the patient. In comparative measurements, in drawing plans, &c., such an instrument as above described may, however, be found to answer a useful purpose. J. H. P.

ART. XXXIII.—*Phthisis and the Stethoscope, or the Physical Signs of Consumption.* By RICHARD PAYNE COTTON, M. D., Fellow of the Royal College of Physicians, London, etc. etc. London: John Churchill. Second edition, pp. 80.

THIS is the second edition of a little work on the recognition of consumption, by the author to whom was awarded the Fothergillian gold medal of the Medical Society of London for a comprehensive volume on the nature, symptoms, and treatment of the same malady. It is evidently a faithful picture of what the writer has encountered at the bedside; and, freed as it is from unnecessary and tedious detail, will undoubtedly furnish an acceptable aid towards the detection of the formidable malady of which it treats.

We shall not, of course, attempt to give a summary of a book in itself a summary. We will merely state, in passing, that we heartily indorse the author's "unorthodox" opinions with reference to the value, or rather the want of value, of percussion in many cases of acute phthisis. So, too, as regards bronchophony; although we are sure that Dr. Cotton has overstated the case when he says that this most unreliable sign is perhaps of all the most commonly trusted to and most commonly employed. J. DaC.

ART. XXXIV.—*Lectures on the Diseases of Infancy and Childhood.* By CHARLES WEST, M.D., Author of "Lectures on the Diseases of Women;" Fellow of the Royal College of Physicians; Examiner in Midwifery at the Royal College of Surgeons of England; Physician to the Hospital for Sick Children; Physician-Accoucheur to, and Lecturer on Midwifery at, St. Bartholomew's Hospital. Third American from the fourth revised and enlarged London edition. Philadelphia: Blanchard & Lea, 1860. 8vo. pp. 630.

THE high estimate of these lectures we expressed on the appearance of the first edition has been fully confirmed by the unanimous voice of the medical profession. As a work of unquestionable authority in reference to the pathology and therapeutics of those diseases of infancy and childhood embraced in them they stand confessedly unsurpassed. They present far higher claims to our notice than as a mere digest of facts recorded by previous and contemporary writers. They are to be regarded, in a great measure, as constituting an original work. While the materials accumulated by others are freely made use of, none of them are appropriated that has not been carefully compared and tested by the author's own experience, acquired in the very favourable and ample field furnished to him by the Hospital for Sick Children in London. The conclusions presented by Dr. West in the lectures before us are based, we are assured, upon the result of nine hundred observations, and two hundred and eighty-eight *post-mortem* examinations, made among *thirty thousand* children who, during the past twenty years, have come under his care.

We have had frequent occasion to consult the lectures of Dr. West, and never without being most favourably impressed with the fulness, accuracy, and great clearness of the author's descriptions, the soundness of his pathological views, and the simplicity and excellence of his therapeutical directions.

In the edition before us all the lectures have been carefully revised, while large additions have been made throughout, to supply the deficiencies of former editions, and to bring up the entire course to a level with the present state of medical knowledge in reference to the subjects embraced in it. Some of the diseases incident to the early periods of life, it is true, remain still unnoticed, while among those embraced in the course some are treated of with much less fulness than others. Taken as a whole, however, the lectures of Dr. West will claim a high rank among the very best treatises on the maladies of infancy and childhood which have appeared in our own or any foreign language.

The lectures which in the present edition have received the largest additions are those on diphtheria, on the disorders of the mind, and on idiocy. The entire lecture (Lec. XVI.) in which the mental affections of early life are treated of has been considerably enlarged and improved; while the whole of it is highly instructive, it is, at the same time, replete with the deepest interest. The most important lectures of Dr. West's entire course are, however, those devoted to the diseases of the respiratory organs, as they occur in infancy and childhood. We know of no publication, indeed, in which the pathology and treatment of these important affections—affections, it may be remarked, which in very many of our States are of extremely frequent occurrence—are more fully and ably treated of. Their consideration occupies thirteen of the lectures (XVII. *to* XXIX. *inclusive*), occupying nearly one-third of the entire volume.

The publishers of the present American edition have appended two lectures published by Dr. West since the appearance of the work in England; one on "Sudden Death in Infants and Children," and the other on "Cerebral Symptoms independent of Cerebral Disease." Both of these subjects, upon which little, if anything, has been written, are of the deepest interest to the physician. They are treated by our author in his usually able and satisfactory manner. D. F. C.

Art. XXXV.—*Introductory Lectures, and Addresses on Medical Subjects, delivered chiefly before the Medical Classes of the University of Pennsylvania.* By George B. Wood, M. D., LL. D., President of the American Philosophical Society, President of the College of Physicians of Philadelphia, Professor of the Theory and Practice of Medicine, and of Clinical Medicine, in the University of Pennsylvania, etc. 8vo. pp. 460. Philadelphia: J. B. Lippincott & Co., 1859.

Upon the eve of his retirement from the office of public medical teacher which he has filled for many years, with great credit to himself, and to the entire satisfaction of his numerous pupils—when about to relinquish, for the time being, at least, the active duties of a medical practitioner, and to absent himself for a season from our midst—Dr. Wood could not have performed a task more acceptable to the large circle of his friends and admirers than the collection and publication of the introductory lectures and addresses on medical subjects delivered by him at various times and on various occasions. He could not have devised a more pleasing memorial of himself, in the view of those who have listened to his instructions during the term of their pupilage, or who have had the privilege of a personal intercourse with him, on a footing of reciprocal friendship, or in the rounds simply of professional intercourse.

Irrespective, however, of their value based simply upon the feelings of respect and esteem cherished for their author, the lectures and addresses of Dr. Wood recommend themselves to the notice of all who regard with favour whatever relates to the history, progress, and ethics of our profession. From them its younger members may acquire many a useful lesson, and even those of riper years cannot fail to find in them much to interest. We cannot, indeed, conceive it possible that any one, whether young or old, can rise without profit from the perusal of the matured reflections and deliberate conclusions of one who, like Dr. Wood, is so distinguished for his devotion to the true interests of medicine, for his efforts to raise it in theory and in practice, as a science and an art, to its proper rank, and to secure for it, as far as possible, that general respect and confidence it deserves, as well from its intrinsic excellence as from the blessings it is known to have already conferred, and which in the future it cannot fail to a still greater degree to confer, on the human race.

The volume before us, we feel confident, will be eagerly sought after by the medical men of the United States, and command a prominent place amid the most cherished works of their respective libraries, as a memento of one who, though no longer to be ranked as an active participant with them in the toils and responsibilities of a medical practitioner, will ever be held in great esteem for his worth as a man, his talents as a physician, and his successful career as a medical teacher and author. D. F. C.

ART. XXXVI.—*A System of Dental Surgery.* By JOHN TOMES, F.R.S., Dentist to the Dental Hospital of London, and to the Middlesex Hospital. With two hundred and seven illustrations. 8vo. pp. 686. Philadelphia: Lindsay & Blakiston, 1859.

DENTISTRY, although generally regarded as a distinct and even an inferior department of general surgery, claims a foothold upon the same physiological and pathological basis by which other branches of medical science are sustained. In many treatises on surgery, it obtains more than a mere casual mention; but its very importance forbids any attempt at its full discussion in such works. Mr. Tomes has for many years been known as a successful investigator of the healthy and morbid conditions of the teeth, and the very elegant volume before us affords the benefit of his labors to the world at large.

He says, in his preface: "In the following pages an attempt has been made to produce within the limits of a manual, a strictly practical work on dental surgery. In order to fulfil this object, it became necessary to enter upon the structure and development of the teeth and jaws in a limited degree only, and to leave untouched any historical account of the writings of those who have from time to time contributed to our knowledge in this branch of surgery. The diseases of the teeth, and of the parts subservient to them, together with the coincident maladies, have been treated of, so far as may be, in the natural order of their occurrence, and the structure and development of the tissues involved have been to some extent described before entering upon the diseases to which they are respectively liable. In a work devoted to the description of practical details, the modes of proceeding in the treatment of diseases, whether by operations or otherwise, must necessarily be those practised by the author."

Mr. Tomes's work is not divided into chapters, but the subjects are simply introduced in succession, under their respective headings. The development and irregularities of both sets of teeth, with the corresponding changes in the jaws, are first described. A serial collection of skulls was made by the author expressly for the purpose of elaborating this account, in the course of which are some very sound remarks, with quotations from Copland and West, upon the constitutional symptoms commonly ascribed to dentition.

A very clear and interesting account is given, under the next head, of the minute anatomy of the dental tissues; the diseases to which they are liable, with the appropriate treatment for each, are also detailed. Surgeons are, however, very seldom called upon to use any other operation for these diseases than that for the radical cure—extraction; so that the directions and illustrations here given will be of interest mainly to those who make dentistry their profession.

Many a country medical practitioner doubtless meets with cases, in which our author's section on extraction would be of great assistance. We are, however, surprised that Mr. Tomes, even avowing as he does his preference of the forceps to the key, should have omitted all description of this latter instrument; we have known several operators of great experience who placed a high value upon it, and its use might be absolutely necessary, in situations where suitable forceps were not to be had.

Generally speaking, the typography of this reprint is very correct; but we notice that Mr. Rainey's name is spelt in two different ways, the wrong one occurring four times, the right only once.

It would be unjust to conclude this notice without calling attention to Mr. Bagg's exquisite illustrations. This gentleman deserves the sincere thanks of our profession for the beauty and artistic finish of his drawings, so many of which have added value to surgical literature. He has in the present instance, we think, even exceeded his usually high standard of execution.

Messrs. Lindsay & Blakiston have displayed great taste and liberality in the getting up of this very handsome volume. J. H. P.

ART. XXXVII.—*Therapeutics and Materia Medica. A Systematic Treatise on the Action and Uses of Medicinal Agents, including their Description and History.* By ALFRED STILLE, M. D., late Professor of the Theory and Practice of Medicine in the Medical Department of Pennsylvania College, &c. &c. Philadelphia: Blanchard & Lea, 1860. In two vols. 8vo.

WE congratulate the profession on the appearance of this work, which has been long anxiously looked for, and in regard to which very favourable anticipations have been indulged in by those acquainted with the author, who is known to be a physician of extensive acquirements, a conscientious and industrious investigator, a liberal scholar, and to have been long engaged in collecting materials for this treatise.

In our next number we hope to be able to give a full review of the work.

ART. XXXVIII.—*Clinical Lectures on the Principles and Practice of Medicine.* By JOHN HUGHES BENNETT, M. D., F. R. S. E., Prof. Inst. of Med. and Senior Prof. of Clinical Medicine in the University of Edinburgh, &c. &c. From the last Edinburgh edition. With 500 illustrations on wood. New York: Samuel S. & Wm. Wood, 1860. 8vo. pp. 952.

HAVING recently reviewed fully (see number for October, 1858, p. 429 *et seq.*) the second edition of this valuable work, all that is necessary at present, in announcing the appearance of the third edition, is to say that the work has been carefully revised, and extended by the addition of fifty pages, with twenty-one new cases and thirty-four new wood-cuts.

ART. XXXIX.—*Lectures on Surgical Pathology.* Delivered at the Royal College of Surgeons of England. By JAMES PAGET, F. R. S., &c. &c. Second American edition. Philadelphia: Lindsay & Blakiston, 1860. 8vo. pp. 699.

IT is creditable to the profession in this country that a reprint of this work should have been so soon called for. It is unquestionably one of the most valuable contributions to surgical pathology which has been made during the present century, and no student should rest satisfied until he has made himself thoroughly acquainted with its teachings.

ART. XL.—*The Diagnosis, Pathology, and Treatment of the Diseases of the Chest.* By W. W. GERHARD, M.D., one of the Physicians to the Pennsylvania Hospital, &c. &c. Fourth edition, revised and enlarged. Philadelphia: J. B. Lippincott & Co., 1860. pp. 448.

THIS work has been so long before the profession, and is so generally known, that it is sufficient to say, the present edition has been revised and corrected, and about one hundred pages of new matter added. Large additions have been made to pneumonia, phthisis, and especially to diseases of the heart.

ART. XLI.—*A Practical Treatise on Operative Dentistry.* By J. TAFT, Professor of Operative Dentistry in the Ohio College of Dental Surgery. With eighty illustrations. 8vo. pp. 383. Philadelphia: Lindsay & Blakiston.

As the title of this work indicates, the wants of students and practitioners of dentistry have been consulted in its preparation. After very concisely noticing several important disorders of the teeth, the author takes up the subject of caries, to which, with its consequences, treatment, etc., two hundred and forty-four pages are devoted. The remainder of the book treats of extraction, with the exception of a very short chapter on anæsthesia.

We think that Mr. Taft has dealt quite practically with the matters properly embraced under the title of his book. The illustrations are in reality more than eighty in number, many of them including several different instruments.

J. H. P.

ART. XLII.—*Description of a Deformed, Fragmentary Human Skull, found in an Ancient Quarry-Cave at Jerusalem; with an attempt to determine, by its configuration alone, the ethnical type to which it belongs.* By J. AITKEN MEIGS, M.D., Prof. Inst. Med. in Med. Depart. of Penn'a College, &c. &c. &c. Philadelphia, 1859.

THIS is a very able and well-drawn up paper, exhibiting extensive research, an intimate acquaintance with the subject, and close and ingenious reasoning. We commend it to the attention of those interested in ethnological studies.

QUARTERLY SUMMARY

OF THE

IMPROVEMENTS AND DISCOVERIES

IN THE

MEDICAL SCIENCES.

ANATOMY AND PHYSIOLOGY.

1. *Retrograde Course of the Emulgent Veins.* By M. Francheschi.—Since the demonstration by M. Claude Bernard before the Society of Biology, of the existence of a retrograde current of the blood in the emulgent veins, experiments and facts have been multiplied tending to prove the facts discovered by that celebrated physiologist—facts which the novelty of the idea and the contradiction to the known laws of the circulation which they entailed caused to be looked upon with much doubt. The works of Littré, de Robin, de Béraud, &c., leave little doubt now of the accuracy of this theory. We have no intention, however, of multiplying experiments and observations on this important physiological point. Those of M. Francheschi are of considerable interest.

The Italian physiologist opened the abdomens of some rabbits, and having drawn out a loop of intestine, he injected into the mesenteric vein a solution of atropine. At the end of half an hour it was discovered in the urine, although neither then nor afterwards did the animal show any symptoms of poisoning. On the contrary, the same dose injected into the jugular vein of another rabbit put an end to him very quickly before the atropine had time to arrive in the bladder. Is it not evident, then, that in the first instance the poison found its way to the kidneys by the abdominal veins without passing into the general circulation?

Here is another not less interesting experiment: M. Francheschi rendered a rabbit diabetic by the means proposed by M. Bernard, by pricking the central nervous centre. Scarcely had the rabbit shown the signs of glycosuria, when he killed him and collected in one vessel the blood of the emulgent veins, and in another that of the corresponding arteries. On being submitted to the action of a cupro-potassic liquid, the venous blood gave a red precipitate of oxide of copper, while the arterial gave no indication of the saccharine matter. "I could," says M. Francheschi, "multiply proofs that the urine is principally secreted by the venous blood," and he quotes the following case:—

A female, aged 30, rather spare than robust, and enjoying sufficiently good health to undergo the fatigue consequent on her position as a poor servant, was for six years in the habit of drinking never less than four or five gallons of water per day. Every two or three hours she was attacked, whether fatigued or not, whether in winter or summer, with so great thirst, that she was never satisfied unless she filled, and, so to speak, refilled her stomach. She drank at least six or eight glasses each time. At night her usual allowance was two gallons and a half of water, and even this frequently failed to assuage her burning thirst, and she has been obliged to get up to look for more. Scarcely had she drank when she was relieved by the bladder of colourless, inodorous liquid, which, in appearance, resembled pure water. In fact, on analysis, neither sugar, albumen, nor any other product could be discovered; and so much did it resemble common water as to be with difficulty recognized as urine.—*Gaz. Médicale de Paris.*

2. *Researches on the Coagulation of the Blood.*—At a meeting of the Medico-Chirurgical Society of Edinburgh (December 16, 1859), JOSEPH LISTER, Esq., communicated some researches on this subject.

He reminded the fellows that in a paper read before them in 1858, he had brought forward facts which seemed to prove that the ammonia theory does not apply to blood within the vessels of a living animal. "The theory," he observed, "asserts that the fluidity of the blood depends upon the presence of a certain amount of free ammonia holding the fibrin in solution, and that coagulation is the necessary result of the escape of the volatile alkali. But it was shown in the paper referred to, that the blood, in man and other mammalia, though coagulating soon after death in the heart and great venous trunks, remains fluid for days in vessels of smaller size, and this under circumstances affording free opportunity for the escape of ammonia; and, on the other hand, that when a portion of a vessel either in an amputated limb or in a living animal is treated in a manner calculated to destroy its vital properties, the blood coagulates in the injured part, but retains its fluidity elsewhere, although there is no greater opportunity for the escape of ammonia in the one case than in the other. A striking instance of the difference between the natural receptacles of the blood and ordinary matter in their relations to the vital fluid happened to come under my notice this morning, in an arm which I amputated last evening at the shoulder-joint, on account of injury inflicted by machinery. On examining the limb, which had lain undisturbed since the operation, I saw that the axillary vein, which was patulous at the part where it had been divided by the knife, contained some blood at a distance of about half an inch from the open orifice; and having squeezed out a few drops, found that it was perfectly fluid, but yielded threads of fibrin when the point of a needle was drawn through it some minutes after emission. The blood had been for upwards of twelve hours freely exposed to the air, but being situated in an uninjured part of a bloodvessel, had remained free from coagulation.

"Further, in the opening meeting of last session I demonstrated another important principle, viz: That ordinary solid matter, unlike atmospheric air, induces coagulation of blood in its vicinity when introduced within the living vessels. Having inserted a piece of clean silver-wire for a considerable distance into one of the veins of an amputated sheep's foot, I slit up the vessel after a short time had elapsed; when I exhibited a coagulum extending along the whole length of the foreign body, whereas a mere wound of the vein failed to induce a clot except immediately at the spot where the injury had been inflicted. It was obvious that the introduction of the wire could not affect the amount of ammonia in the blood; and from this and many other facts to which I need not here allude,[1] I was led to the opinion, that as regards what takes place within the living vessels, the ammonia theory might practically be left entirely out of consideration.

"What I have to show this evening will, I think, prove that even for blood outside the body, the ammonia theory, whatever degree of truth it may contain, is very far indeed from representing the whole truth.

"One of the most remarkable circumstances connected with blood that has been shed from the vessels is, that it refuses to coagulate below a temperature of 40° Fahr. or thereabouts. This is explained by Dr. Richardson on the hypothesis, that the low temperature prevents the evolution of ammonia,[2] while the rapidity with which coagulation takes place at high temperatures seems to him satisfactorily accounted for by the increased volatility exhibited by the ammonia under such circumstances. I was myself at first disposed to accept this interpretation; but subsequent reflection led me to think that, to say the least, it required confirmation. It occurred to me, that if it were true that the fluidity of blood below 40° was due to free ammonia retained in it, coagulation would take place immediately, in spite of the cold, if the alkali were neutralized by the addition of acid, provided the fibrin were not impaired in its coagulating property by the reagent employed. In order to ascertain whether this result would really follow, I poured blood freshly shed from a sheep into vessels surrounded by ice-cold water, and by this means succeeded in keeping some portions of it fluid for a considerable time, and found that it continued liquid notwithstanding the addition of dilute acetic acid in what I supposed must be sufficient quantity to overcome the feeble alkalinity of the blood, while the acidulated specimen retained the property of coagulating very rapidly when raised in temperature. But on attempting to discover whether this blood was really acid in reaction, I found that its red colour entirely vitiated the indications of both litmus and turmeric; and even the serum obtained after contraction of the clot was too much tinged to admit of the satisfactory application of the test paper.

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[1] For some of these facts see Philosophical Transactions for 1859, pp. 673 *et seq.*

[2] See Dr. Richardson's Astley Cooper Prize Essay, p. 303, where a fact is mentioned, indicating that no ammonia was given off at 34° Fahr. from a specimen of blood which had been artificially ammoniated, and which at 96° afforded distinct evidence of evolution of the alkali.

"Being thus baffled in my experiments with the sheep, I had recourse to the horse, in which the red corpuscles subside with peculiar rapidity in the plasma, giving rise to the buffy coat well known to occur in the blood of that animal in the state of health, so that the opportunity would be presented of obtaining liquor sanguinis free from red corpuscles, to which the tests could be applied without risk of fallacy. Accordingly, yesterday afternoon, a horse having been placed at my disposal by my friend Mr. Gamgee of the New Veterinary College, I tied into the right jugular vein one end of a piece of vulcanized India rubber tube, four yards in length, the greater part of which was coiled up in a freezing mixture, and some of the blood, having been allowed to remain for a while in the tube, was shed into vessels standing in ice-cold water. Its temperature on first escaping into the air was 39½° Fahr., and having been since kept in the cold it is still only partially coagulated at the present time (twenty-nine hours after it was shed). At first, however, it appeared as if we were likely to fail, the blood of this horse being a rare exception to the general rule, in exhibiting for a long time no appearance of the 'sizy' layer. But after it had stood for about two hours, I succeeded in removing from the surface, by means of a glass tube, a sufficient amount of liquor sanguinis for the performance of an experiment, taking care that the glass into which it was shed, and the tube, were both near the freezing point. To half a drachm of this plasma I now added one minim and a half of moderately dilute acetic acid, which had the effect of rendering it distinctly acid, as indicated by its communicating a red tint to litmus and restoring the colour of turmeric paper which had been reddened by dipping it in the portion of the liquor sanguinis which had not been acidulated. I kept the specimen in ice-cold water till this evening. For a long time it remained perfectly fluid, except the formation of little soft coagulum at the surface, just as in the unacidulated blood; but a few drops placed in a watch-glass and brought into a warmer atmosphere, coagulated in about the same time as the blood that first flowed from the tube, a soft clot forming in about a quarter of an hour. Even at the expiration of twenty-four hours a portion of what remained in the cold was still fluid, though faintly acid, but set into a pretty firm clot on being removed into a warmer situation.

"[Mr. Lister now proceeded to perform a similar experiment before the society. A glass containing some liquor sanguinis of the horse's blood shed twenty-nine hours before, was taken out of the mixture of ice and water in which stood, and the contents were seen to be still to a considerable extent fluid, although acidulated with acetic acid two hours previously. A portion of the liquid was poured into a watch-glass, and, having been shown to be acid by litmus paper, was set aside to coagulate, and about a quarter of an hour later was exhibited as a soft clot. Mr. L. then continued—]

"From these facts it is obvious that the ammonia theory utterly fails to explain the influence of temperature on coagulation. The circumstance that the liquor sanguinis was acid in this experiment is clear proof that it contained no free ammonia whatever; yet the acidulated plasma was affected by cold and heat, just like ordinary blood. It remained fluid near the freezing point, although the ammonia it originally contained must have entered into combination and lost its reputed power of dissolving the fibrin, and it coagulated when warmed, though the ammonia, fixed by the acid, must have been incapable of evolution. If the author of the ammonia theory were asked to explain why this horse's blood took a quarter of an hour to coagulate, he would no doubt reply that it must have contained a large amount of ammonia, requiring all this time to escape. But we have seen that the acid liquor sanguinis, though possessing no free ammonia at all, took as long to clot. There can therefore I think be little question but that the slowness of coagulation in the horse, compared with the rapidity of the process in the sheep, and the variations met with in the period in the human species, depend not on the amount of ammonia present in the blood, but on differences in its other constituents, and, speaking generally, that the theory which attributes the coagulation of the blood to the escape of ammonia is fallacious."[1]—*Edinburgh Med. Journ.*, December, 1859.

3. *Saccharine Function of the Liver.*—Dr. GEORGE HARLEY, in a paper read before the Royal Society (Feb. 2, 1860), related a number of experiments which he performed, in concert with Prof. Sharpey, in the Physiological Laboratory at University College. The results of these experiments do not in any way countenance the notion that sugar is not produced in the healthy animal body; but, on the contrary, such conclusions as they afford are altogether in favour of the following generally received views upon the subject: 1. Sugar is a normal constituent of the blood of the general circulation. 2. The portal blood of an animal fed on *mixed* diet contains sugar. 3. The portal blood of a *fasting* animal, as well as of an animal fed solely on *flesh*, is devoid of sugar. 4. The livers of healthy dogs contain sugar, whether their diet be animal or vegetable. 5. Under favourable circumstances, and with proper precautions, saccharine matter may be found in the liver of an animal (a dog) after three entire days' rigid fasting. 6. The sugar found in the bodies of animals fed on *mixed* diet is partly derived directly from the the food, partly formed in the liver. 7. The livers of animals restricted to flesh diet possess the power of forming glucogene, which glucogene is, at least in part, transformed into sugar in the liver. 8. As sugar is found in the liver at the moment of death (even when the plan of freezing it has been strictly attended to), its presence cannot properly be ascribed to a post-mortem change, but it is to be regarded as the result of a natural condition.—*Medical Times and Gaz.*, Feb. 11, 1860.

4. *On Nutrition by Blood in Starvation.*—Experimental researches made on animals subjected to a more or less absolute privation of food have shown that life may be maintained for a certain period at the expense of the substance of the organs, as is proved by the progressive diminution of the weight of the animal suffering from inanition. This mode of nutrition has long been

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[1] Since the above communication was made, I have seen for the first time the able essay of Dr. E. Brücke, which competed for the Astley Cooper Prize (see *Med.-Chir. Review*, vol. xix.); and I find that the principle which he advocates—viz., that the fluidity of the blood within the living body depends upon an action of the walls of the vessels upon it—is supported by many facts which he has observed in the chelonian reptile, very similar to what I have made out in mammalia. Thus, he found that the blood remained fluid in the heart of the turtle for days after death, and for several hours after he had blown air through the veins of the neck, so as to make a foamy mixture in the cavities of the organ. He also found, as had been previously ascertained by Virchow and others, that after the introduction of mercury into the heart the blood coagulated about the globules of the metal, but not elsewhere, and this he regarded as an example of the influence of ordinary matter in inducing coagulation in its vicinity. He also succeeded with the following very striking experiment, which would not answer with mammalia: He drew blood into a cup from the veins of a living turtle, and injected it into the empty heart of another turtle just killed, and found that the blood remained fluid for several hours in its new situation, instead of coagulating in a few minutes as when retained in a cup.—J. L.

termed *autophagy;* and M. Auselmier wishes to designate it as *spontaneous autophagy*, as a contrast to the term *artificial autophagy*, which he employs when the animal subjected to inanition is submitted to daily small bleedings, and his blood given him as aliment. He has made a great number of comparative experiments upon two groups of animals, resembling each other in every circumstance as far as possible—one group being abandoned to the effects of inanition, and the other exclusively fed with the blood drawn from the veins of the animals experimented upon. The following are the results deducible:—

1. The absolute privation of food diminishes the production of caloric in all warm-blooded animals. The diminution is nearly uniform during three-fourths of the duration of vital resistance, that is, about 0°.2 C. in every twenty-four hours. During the last fourth of the time it decreases very rapidly, and death occurs between the 23° and 24° C. 2. A relative privation of aliment causes a less rapid diminution of the production of caloric, proportionately to the rations. 3. In all animals of warm blood the temperature of the blood cannot descend below 26° C., without death being the consequence. 4. Death from starvation is the result of an arrest of nutrition produced by the progressive diminution of the temperature of the animal—the production and accumulation of a certain quantum of caloric being one of the conditions of nutrition in all animals of this class. 5. Death by starvation would not be the result of the consumption of all the materials which the organism can supply if we could change the condition of cooling which is the consequence of inanition. In fact in the animals who have succumbed from absolute abstinence, the emaciation is on the average four-tenths of the initial weight, while in relative abstinence it may attain six-tenths. 6. The diminution of calorification arises from the inactivity of the gastro-intestinal absorbent system, the temperature of the animal increasing or diminishing according to the degree of the activity of this function, just as the latter is modified by the temperature at which it effects its operation. 7. If we draw from animals subjected to inanition a certain amount of blood, and give it them as an aliment, we find the production of caloric continues, together with the gastro-intestinal activity, the daily loss of temperature being less considerable, and the emaciation becoming more complete, so that it may attain six-tenths of the initial weight. 8. The bleedings and the rations which they supply should be diminished in quantity in proportion to the prolongation of the experiment; and digestion takes place more completely and more rapidly in proportion to such prolongation. In proportion to the frequency of the bleedings, the exhaustion of the organism, the nervous irritation, the diminution of the gastro-intestinal secretions essential to digestion, the monotony of the aliment, the diminution of the temperature, and the putrefactive condition of the aliment, the prolongation of this mode of nutrition becomes impossible. 9. The gastro-intestinal activity is indicated by the return of the excretions, the elevation and generalization of the temperature and pulse, an increase of muscular force, and the diminution of nervous phenomena, and of the sensations of hunger and thirst. 10. The calorification does not decrease more than a mean of 0°.1 C. in the twenty-four hours. 11. Artificial autophagy allows of excessive emaciation, *i. e.* allows of its being carried to six-tenths in fat subjects, five-tenths in medium subjects, and four-tenths in the young; while the author's and Chossat's experiments show that in spontaneous autophagy it attains only five-tenths in the fat, four-tenths in the medium, and two-tenths in the young. 12. Artificial autophagy thus considerably prolongs life, viz., for nearly one-half more than its duration in spontaneous autophagy. The application of the author's views may be made in the case of shipwrecked persons, or others subjected to the horrors of starvation.—*Comptes Rendus*, December, No. 24.

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5. *On the frequent Occurrence of Phosphate of Lime in the Crystalline Form in Human Urine.*—By Arthur Hill Hassall. It is commonly stated by writers on the chemistry and pathology of the urine, that phosphate of lime never occurs in the renal excretion in the crystalline form, but always presents itself as a granular amorphous deposit.

The author has shown in this communication that deposits of phosphate of lime, in well-marked and highly characteristic forms, are of frequent occurrence in human urine, very much more so indeed than the amorphous deposits of that salt, which are comparatively rare and exceptional.

It follows, therefore, that the statements hitherto advanced, of the absence of crystallized phosphate of lime from the urine of man, are erroneous.

From the frequency of their occurrence, it is singular that the true nature of these crystals should have been so long overlooked. This, the author considers, cannot have arisen from the crystals themselves, at least in some of their various modifications, not having been observed, but rather from their having been confounded with those of the phosphate of ammonia and magnesia, from which, however, they differ as much in form as in composition.

The author considers the occurrence of deposits of phosphate of lime to be of deeper pathological significance than those of phosphate of magnesia or phosphate of magnesia and ammonia. While the greater part of the phosphoric acid of these latter phosphates and all their magnesia are derived from the ingesta, there is in the animal organism in the bones several pounds' weight of phosphate of lime, from which, in some cases, and in certain maladies and conditions of the system, the deposits of that substance encountered in the urine are doubtless obtained.

The communication was illustrated by a series of drawings, exhibiting the several varieties in the form and grouping of these crystals observed by the author.—*Proceedings of Royal Society.*

MATERIA MEDICA AND PHARMACY.

6. *On the Chemical Composition and the Medical Employment of the Oils from the Liver of the Cod, the Skate, and the Dog Fish.*—M. Dévergie has made a report to the Academy of Medicine of Paris, on a memoir by Dr. Delattre on this subject.

M. Delattre resides at Dieppe, and has therefore abundant opportunities of obtaining a perfectly pure oil, but up to the present time the purest oils have been procured in contact with the air. M. Delattre, however, has devised an apparatus for isolating the oil from the influence of the atmosphere. This object is effected by expelling the atmospheric air from the vessels in which the oil is extracted from the livers, and replacing the air by carbonic acid. By this process the operator avoids the formation of the oleic, sulphuric, and phosphoric acids, which would otherwise be formed. M. Delattre having thus obtained pure specimens of oil, he made twelve analyses of each kind, and he tabulates the quantitative and qualitative results, from which it appears that all the oils contain a very large proportion of oleine, with some margarine, and some very small quantities of chlorine, iodine, bromine, sulphur, and phosphorus. M. Delattre also ascertained that the iodine, bromine, chlorine, phosphorus, and sulphur are not in combination with the potassium and sodium, as was formerly supposed, but are in a free state. Another important fact was ascertained by MM. Delattre and Girardin—namely, that in the spring of the year cod-liver oil does not contain a particle of iodine. It is also ascertained that the livers do not yield an equal quantity of oil at all periods of the year; that the quantity increases from June to November, and then diminishes from November to March, when it is at its minimum. In comparing the chemical composition of the oils from the cod and the skate, it is found that the proportion of iodine is less by half in the latter oil, and that that of sulphur is less by a fourth; but on the contrary, that the proportion of phosphorus is greater by about a third. As to the dog-fish oil, it is richer in phosphorus and iodine than cod-liver oil, and contains rather less bromine and sulphur. The increase of iodine is double the loss of the bromine. Compared with the skate-oil, it contains two-and-a-half times more iodine, and only a fifth less of phosphorus. Chemically, therefore, it is richer in inorganic elements than the cod and skate oils, except as to the proportion of phosphorus in the latter. M. Delattre has extended his researches to the chemical properties of the different varieties of cod-liver oil, and has analyzed, respectively, the pure, the amber-coloured, the light, the brown, and the black oils. From these analyses he draws the conclusion (which has already been established), that in passing from the purest to the black oil, there is a decreasing progression in the quantity of the inorganic constituent.

Those who explain the mode of action of cod-liver oil by reference to its chemical elements, attribute especial efficacy to its iodine, bromine, and phosphorus; but the fact is, that all the varieties of oil differ very slightly in the proportion of these ingredients. A physician, therefore, who employs the various kinds of oil, will find very little difference in their operation; for it is of little importance whether, in twenty-seven days, a patient takes $6\frac{1}{2}$ grains or $6\frac{1}{4}$ grains of iodine, or 4 grains or $3\frac{19}{20}$ grains of phosphorus, and so forth. M. Dévergie cannot agree in the views of those chemists who propose to supply the fish-oils by artificial oils; not because he overlooks the therapeutical importance of iodine, bromine, phosphorus, and sulphur with cod-liver oil, but because he thinks that the curative effect does not reside *solely* in those chemical elements. It is to the association of elements by nature that the special action of medicines is due, and these effects cannot be obtained when the elements are in an isolated state.

M. Delattre, in treating of the medical properties of the oils from the cod, skate, and dog-fish, arrives at the following conclusions: 1. That the physiological action of the fish-liver oils is the same, whatever may be the kind of oil employed. 2. These oils may be considered as succedaneous to one another, and may all be employed in the treatment of scrofulous, cutaneous, and rheumatic affections. 3. There are affections which more particularly require the employment of some one oil. Thus, the cod-liver oil is more efficacious in scrofulous phthisis than the skate or dog-fish oil. The skate oil effects more rapidly the cure of serous diarrhœa, and of mesenteric engorgement in children during dentition; indeed, this is the only remedy employed by M. Delattre in such cases, which are very frequent at Dieppe. The skate oil also succeeds better than the other oils in the treatment of cutaneous diseases and of chronic rheumatism. 4. The dog-fish oil appears to exercise a special action upon alterations of the bones, and in all cases it may be advantageously substituted for cod-liver oil. M. Delattre does not even hesitate to give it a marked preference in the treatment of scrofulous affections. In reporting upon these views of M. Delattre, the Commission offers no decided opinion upon their validity, as time and experience will be necessary to confirm or confute them; but it has endeavoured to solve one of the propositions—namely, whether dog-fish oil can be advantageously substituted for cod-liver oil, and if it may not even be preferable to it in some cases. This question is of the more importance because the cod fishing sometimes fails, while that of the *squalus catulus* (the dog-fish) never fails; and because the cod is a fish of a certain value, always meeting with purchasers, while the dog-fish is of no value at all, and is usually a source of annoyance rather than profit to the fisherman. The dog-fish oil sent to the Commission was very limpid, of a clear yellow colour, of a less powerful smell than that of cod-liver oil, and of a less disagreeable taste. Its effects were tried upon twenty patients in the Hôpital St. Louis, and to all of them the dog-fish oil was administered for a week instead of the cod-liver oil: two only of the number gave the preference, as to taste, to the brown cod-liver oil. A patient in whom the use of the cod-liver oil was suspended at several intervals and then relinquished altogether, was able to bear the dog-fish oil in a large dose until he was cured. This was not an isolated case, for in another instance a patient was able to bear the dog-fish oil, although he could not endure the cod-liver oil. Out of twenty patients who took dog-fish oil at the same period, eighteen preferred it to cod-liver oil; and, on the other hand, some patients who could not tolerate the cod-liver oil, were able to take the dog-fish oil; but still some persons could not tolerate either the cod-liver oil or the dog-fish oil. With regard to the therapeutical properties of the dog-fish oil, M. Dévergie, as the result of his observations, arrives at the conclusion that this oil produces all the effects of cod-liver oil, and cures with the same rapidity, so that it may be regarded as equally valuable with the latter oil. But further observations by other physicians have not altogether confirmed this view, and therefore the evidence before the Commission is at present insufficient to justify the formation of a definitive judgment as to the real value of the dog-fish oil, and the more special indications which it is calculated to fulfil; but it is sufficiently established that this latter oil may be substituted for cod-liver oil, a fact of considerable importance, since cod-fish is often scarce and dear, while the dog-fish is always too abundant and very cheap. —*B. and F. Med.-Chir. Rev.*, Jan. 1860, from *Bull. Gén. de Thérap.*, May 15, 1859.

7. *Deodorants.*—Dr. THOMAS SKINNER, of Liverpool, draws attention (*Brit. Med. Journ.*, Dec. 3, 1859) to the claims of certain substances as deodorants, particularly tar-water. His attention was drawn to this subject from his having been called to a case of advanced scirrhous cancer of the uterus, the offensiveness of the discharge from which was so great and indestructible that soap and chloride of lime failed to deodorize his fingers for hours.

To save others the trouble of repeating his experiments, he states the means he tried, and their relative success.

1. *Condy's Disinfecting Fluid* (*purple*).—This fluid, which is probably a concentrated solution of the permanganate of potass, was used in the proportion of two drachms to a pint of water as a vaginal injection three times a day. The proportions were rapidly increased up to one fluidounce to a pint of water. The result was in every way satisfactory.

"One great advantage in the use of the permanganate," says Dr. S., "is, that it has no smell of its own, and that, being soluble, it may be used either in the form of a medicated pessary, or in that of an injection. Its lovely *mauve* colour renders it both fashionable and pleasing to our patients. From my experience of its use, I can confidently recommend it in the proportion of one fluidounce to a pint of water, as a deodorant in cancer of the uterus; a cupful to be used as an injection thrice daily, and the strength to be increased, if found necessary."

2. *Decoction of Daucus Carota or Common Carrot.*—Being aware of the great value of a carrot poultice in deodorizing bad smelling abrasions, &c., Dr. S. ordered the patient to inject a warm concentrated decoction of the common carrot. The smell and irritation were allayed by this, but the former was not annihilated.

3. *Disinfecting Powder and Paste of MM. Corne and Demeaux.*—To this powder was added enough olive oil to form a paste of sufficient consistence for vaginal pessaries. The mass was divided into balls, which were dipped in the usual solution of wax, lard, and oil.

"So far as deodorizing and even lessening the amount of the discharge is concerned, the pessaries were certainly most effectual; but to the use of such means in the treatment of carcinoma uteri, there are insuperable objections, viz:—

"*a.* The *coal* tar in itself is exceedingly disagreeable to the olfactory organs of females, however little it may affect those of M. Velpeau. This objection, however, may be waived by adopting *vegetable* instead of *coal* tar in forming the powder.

"*b.* The discharge is absorbed by the sulphate of lime, which swells to some extent, sets hard, and becomes a source of considerable irritation.

"*c.* As such medicated pessaries do *not* dissolve, they accumulate, until removed by a second party.

"*d.* The surface of the ball comes first into contact with the discharge, and the plaster of Paris setting, prevents the interior of the ball from being of any use.

"*e.* Applied as a powder, it is worse than useless, as it cakes or sets, and forms fragments which are very disagreeable to the patient, and exceedingly difficult of removal."

4. *McDougall's Disinfecting Powder; Vegetable and Animal Charcoal, etc.* —None of these or any other insoluble substance were tried, as Dr. S. believed, fluids should be preferred.

5. *Chlorides of Zinc and Iron, etc.*—The deodorant and useful properties of these are so familiar to all, that Dr. S. says comment on them is unnecessary.

The same, he says, may be said of the .

6. *Chlorates, Hypochlorites, and Hyposulphites;* none of which he tried in this case.

7. *Metallic or Mineral and Vegetable Astringents;* such as the sulphates of alum and zinc, and the acetate of the latter metal, also solutions of tannin were tried. Comparatively speaking, they were all more or less effectual in deodorizing and lessening the discharge, but very much inferior as deodorants to the substances previously made use of.

8. *Solution of Naphtha and Creasote.*—"This preparation is highly commended by Dr. Lionel Beale for preserving moist specimens for the microscope. As I had some of it made by myself, I gave it a trial upon a small scale; and it was so satisfactory, that I am induced to give the formula. The only objections to its general use are, the smell of creasote, and the length of time required to prepare it. It is as follows: 'Creasote, three drachms; wood naphtha, six ounces; distilled water, sixty-four ounces; chalk, as much as may be necessary. Mix first the naphtha and creasote; then add as much prepared chalk as may be sufficient to form a smooth thick paste; afterwards, add very gradually the water, and mix well in a mortar. Add two or three small lumps of camphor, and allow the mixture to stand in a lightly covered vessel for a fortnight or three weeks, with occasional stirring. Pour off the almost clear supernatant fluid, and filter it if necessary. Preserve it in well-corked or stoppered bottles.' (*The Microscope in Clinical Medicine*, 1st ed., p. 87.) This preparation, when carefully made, is highly *antiseptic*—a property which cannot be said to be possessed by the powders or pastes of MM. Corne and Demeaux, if Mr. May's experiment can be considered as decisive. (*Journal*, Oct. 15, 1859, p. 832.) I feel certain that, in hospital practice, such a preparation, variously diluted, and tar-water. would be found of great service as addendæ to the water-dressing of wounds and ulcers, possessing, as they do in a very high degree, deodorant and antiseptic, along with stimulating, astringent, and consequently cleansing and healing properties. In point of cleanliness, they are every way superior to the preparations of MM. Corne and Demeaux. For reasons already given, the naphtha and creasote solution is not so available in general practice."

9. *Solution of Lead and Creasote.*—"The following was attended with very good effect: ℞.—Plumbi acetatis ʒj; acidi acetici ʒss; creasoti ♏x. Misce, et dein adde gradatim, misturæ camphoræ Oj. Solve. Sig.—A teacupful for injection twice or thrice daily.

"The creasote may be increased to thirty minims, if thought necessary. Creasote dissolves the acetates, the acetate of silver excepted; and is itself freely soluble in acetic acid. The acetic acid and the camphor serve to mask the odour of the creasote; and a few drops of any essential oil may be added for the same purpose, with the best effect, as creasote is soluble in most of them."

10. *Iodine.*—"I have not yet had an opportunity of trying the effects of iodine, as recommended by M. Marechal (de Calvi) to the Academy of Medicine of Paris, on August 8th last. Its undeniably powerful antiseptic properties, as proved by M. Duroy, and its being easily soluble, either in the form of a lotion for injection, or in the form of an ointment as a pessary, are sufficient reasons, in my estimation, for giving it a fair trial as a deodorant in carcinoma uteri, and other affections attended with offensive discharges."

11. *Tar-Water. Aqua Picis Liquidæ. D.*—"While reading a report of the discussion on deodorization between MM. Renault and Velpeau lately, I observed that it was merely a matter of economy and of olfactory preference, which made the difference between the use of coal and vegetable tar in the manufacture of the disinfecting powder; and, as I was much inclined to believe that the tar, or one or more of its active principles, is the essential ingredient, I determined to try the effect of the injection of tar-water. I was strengthened in this idea by having read the eulogiums passed upon it by Bishop Berkeley and others, and in the pages of the *Medical Commentaries*, alluded to by Dr. Mackenzie at the meeting of the Medical Society of London, on October 24th.

"My patient has now used it undiluted for a month or more, and is likely to continue its use, as its beneficial effects have far surpassed my most sanguine expectations. The discharge has much decreased, and is for the present at a minimum. The foul smell entirely disappeared on the first day she used the tar-water as an injection; and, in its stead, the apartment, the bed, and the patient, have a mild and really refreshing aroma of a shipbuilder's yard in the distance. The patient and her friends have become so accustomed to this slight, and rather agreeable odour, that they are not now sensible of its existence; and they, as well as myself, can bear evidence that none of the many measures adopted for the purpose of deodorizing the discharge, have been so eminently successful as the simple injection of tar-water."

Formula for Tar-Water. "*Aqua Picis Liquidæ, D.*—Tar, lb. j; water, cong. j; mix, stirring with a stick for a quarter of an hour; as soon as the tar has subsided, strain the liquor, and keep it in well-closed jars." (Neligan's *Materia Medica*, 3d ed., p. 374.)

"*Properties.*—Tar-water ought to be perfectly clear, and of a pale sherry or amber colour. It has a bitter, resinous, and considerably acid taste; and a slightly creasotish, but rather agreeable empyreumatic odour. It reddens litmus-paper, and has a density of about 1.005. "The volatile oil in tar-water is partly held in solution by acetic acid, which, as is well known, dissolves creasote. It (tar-water) consists of water holding in solution acetic acid and pyrogenous oil and resin." (Pereira's *Materia Medica*, p. 1205.) The late Professor Royle says, that tar-water contains "creasote and other matters in solution." (*Manual of Materia Medica*, p. 647.)

"*Mode of Administration.*—By the aid of Higginson's invaluable syringe, a tepid solution of soap and water is first to be injected; and, immediately thereafter, a breakfast-cupful or more of undiluted tar-water. This should be done twice a day, if the patient's strength will admit: hitherto, a more frequent use of it has not been required. It is necessary that the tar-water should come into contact with the ulcerated surfaces: therefore, the recumbent posture is preferable, and a long vaginal nozzle to the syringe is of advantage. If there is an intelligent, handy nurse in attendance, and the ulcerated cavity is extensive, and its lips lobulated and lapping over each other, a piece of lint saturated in tar-water, with a piece of tape or thread attached to it, may be inserted within the cavity, or the point of the nozzle may be directed into the ulcerated cavity before injecting.

"Lastly, as important in itself, and as bearing upon the action of many of the substances alluded to, I would briefly call to remembrance the well-known properties of

"12. *Creasote*, which literally signifies flesh-preserver (from κρέας, flesh, and σώζω, I preserve). It is the most important of the products obtained from wood-tar by Reichenbach, in 1830. It dissolves several salts, particularly the *acetates*, the acetate of silver excepted, which it reduces. It is itself completely soluble in acetic acid, wood naphtha, and alcohol, in most volatile oils, in the alkaline solutions, and in from eighty to one hundred parts of water. Like the chlorides of iron, mercury, zinc, and other caustics, it is a powerful coagulator of albumen; but, unlike these agents, the insoluble compound which it forms with the tissues *resists putrefaction*. In fact, it is the best known antiseptic; consequently, it is a powerful deodorant. Finlay Dun says: "It is believed to have been the essential agent used in embalming the Egyptian mummies. It is extensively employed in preparing various dried meats, and might be used for preparing subjects for dissection, by dissolving it in acetic acid, and injecting the solution into the veins. . . . Externally, it acts beneficially as a stimulant and astringent, an antiputrescent and deodorizer." (*Veterinary Materia Medica*, pp. 199, 200.) Of the use of creasote as a deodorant in carcinoma uteri, I believe that Dr. Copland was among the first who employed it. (*Cyclopædia of Practical Medicine*, vol. iii. p. 1283.)

From the foregoing experiments and observations, Dr. S. is of opinion—

1. That creasote, or its analogue carbolic acid, or some such empyreumatic product, is the active ingredient in the disinfecting powders of MM. Corne and Demeaux, of Messrs. Smith and McDougall's patent, and of the majority of our best disinfectants which smell of or contain such ingredients.

2. That, as the powder of MM. Corne and Demeaux is something more than nsoluble; that, as it sets and becomes hard, and is otherwise objectionable—its

use, however effectual as a deodorant, is impracticable so far as carcinoma uteri is concerned.

3. That in the treatment of cancerous ulceration of the uterus, a fluid or soluble deodorant is much to be preferred.

4. That the order in which I rate the various liquid and soluble deodorants I have drawn attention to is as follows:—

a. Tar-water (*Aqua Picis Liquidæ, D.*)

b. Condy's disinfecting fluid (purple), one ounce to the pint; or the permanganate of potass as a vaginal pessary of two drachms, from ten grains to a scruple in each.

c. Solutions of creasote: the lead and creasote (No. 9); the naphtha and creasote (No. 8); or vaginal pessaries of two drachms, from five to ten minims of creasote and ten grains of camphor in each.

d. Solutions of the chlorides, chlorates, hypochlorites, and hyposulphites.

e. Metallic or mineral and vegetable astringents.

f. Decoction of the *Daucus Carota*, or common carrot, particularly if any of the others should prove irritating, and an emollient requisite.

8. *Water-glass, a Partial Substitute for Collodion.* By Dr. KUCHENMEISTER. —*Preparation of water-glass* (Lehmann's Taschenbuch d. theor. Chem.). If ten parts of potassa are melted together with fifteen parts of powdered quartz, and one part of charcoal, a blackish-gray glass is obtained, which is soluble in five parts of water; on evaporating this solution, an opalescent, semi-fluid mass is formed, which has an alkaline taste and reaction, and does not absorb carbonic acid from the air; by slow evaporation it is formed into a glassy mass of conchoidal fracture, unchangeable at the atmosphere; it is this water-glass $= 3KO, 8SiO_3$. A similar substance is obtained with soda.

The author has used this substance as an external application in cases of bee-sting, with an excellent result, and has found it to diminish the pain and swelling very promptly. He explains its efficacy partly by the circumstances that the alkaline water-glass neutralizes the acid of the bee's poison (formic acid), partly by the fact that on evaporating slowly on the skin—similar to collodium, but somewhat slower—it forms a smooth and even coating, which protects the wound from the entrance of air, dust, and other foreign substances. Water-glass may thus be usefully employed:—

1. *In cases of bites and stings of such animals which introduce an acid poison into the wound*, viz., bees, humble-bees, wasps, hornets, gnats, mosquitoes, bugs, toads, perhaps also snakes. But the author recommends the remedy particularly in cases in which ticks, sand-bugs, lepti autumnales, and crab-lice have bitten themselves into the skin, as the removal of the parasite is much facilitated by the application, the coat formed by the water-glass suffocating the animal by obstructing the tracheal openings which project from its body.

2. The application of water-glass proved also very efficacious in a case of *erysipelatous inflammation* of the hand in a child; in erysipelas ambulans of the face, the author has not been so successful with the remedy. Whether it could be used with advantage in mastitis, skin diseases of different nature, particularly those of the humid kind, or in tetter, with an acid reaction, remains to be ascertained; in herpes circinatus it is very useful.

3. Water-glass is one of the best means *to cleanse the skin* from tar, varnish, residues of plaster, etc.; it may perhaps be also usefully employed to clean the scalp in disease of the hair.

It is inferior to collodium in respect to tenacity, and is therefore less applicable in gaping wounds; in cases in which a coating is required to be durable if immersed in water, it cannot be used at all. In order to avoid its crumbling off, the coating ought to be renewed from time to time. *It is preferable to collodium*, on account of the greater readiness with which it can be removed.—*Ranking's Abstract*, vol. xxx.

MEDICAL PATHOLOGY AND THERAPEUTICS, AND PRACTICAL MEDICINE.

9. *Epidemic of Diphtheria.*—Dr. R. W. CREIGHTON, of Chapel-en-le Frith, gives (*Edinburgh Medical Journal*, February, 1860) an instructive account of an epidemic diphtheria, which occurred last year in his neighbourhood. He attended 45 cases, of which 25 were males, and 20 females. In all, the disease appeared on the fauces, or fauces and air-passages—the only exception being a case of diphtheria of the vulva, in a child aged 1 year and 9 months, the youngest of those he saw. The oldest was 44 years of age; 12 were under the age of 5; 25 under 10; and 35 under 15 years.

Of the 45 cases, 9 proved fatal, or 1 in 5; of these, 6 died by *asphyxia*, from extension of the disease to the air-passages, and 3 by *asthenia*, after all traces of the exudation had disappeared, and without any evidence of embarrassed respiration.

With regard to the treatment, Dr. C. says: "Every one, I believe, who has seen much of genuine diphtheria, will at once exclude it from the list of 'self-limited disorders,' and will readily admit the truth of the statement made by Bretonneau,[1] 'that it is the nature of diphtheritic inflammation to encroach from spot to spot, and not to be extinguished on the points which it previously occupied; . . . and if the most efficacious therapeutical plans are not directed against these tendencies, that the extension of the disease into the air-passages cannot be prevented.'

"The first three cases that came under my care were treated with local applications of a strong solution of nitrate of silver, and chlorate of potash internally, and they all proved fatal.

"Having been for several years[2] convinced of the great value of the muriated tincture of iron in erysipelas and many other forms of inflammation, I determined on trying the remedy in diphtheria; and finding that Dr. Heslop, of Birmingham, had employed it with great success in this disease, along with the application of muriatic acid to the affected surface, I adopted this method of treatment in six cases. Of these, two died; but the disease was so far advanced in both, when I first saw them, that their prospect of recovery, under any treatment, was very small indeed.

"In watching the progress of some cases which occurred soon afterwards, I became convinced that stimulating the cutaneous circulation, and promoting diaphoresis in the early stage of the affection, were valuable additions to the treatment.

"I accordingly, during the remaining part of the epidemic, gave for the first few days from a drachm to two drachms of the liq. acet. ammoniæ, along with the tinct. ferri muriat., in doses of from four to eight minims, every two or three hours.

"The local application which, after many trials, I found most generally useful, was a mixture of equal parts of dilute muriatic acid and the muriated tincture of iron, with a varying proportion of water according to the age of the patient, but never exceeding the amount of the acid and the tincture. The importance of *early* local treatment in diphtheria is very great—as great, I believe, as the early performance of the crucial incision in a case of carbuncle; for though it is true that diphtheria is formidable as a constitutional affection, and sometimes proves fatal, after all local traces of the disease have disappeared, still, the risk of invasion of the air-passages by the deposit, and the increasing severity of the general symptoms, while the exudation extends, at once suggest the necessity of endeavouring to limit it.

"When applied to the exudation in its early stage, the acid mixture coagulates, and loosens it so completely, that it is generally adherent to the surface of the sponge (or, what I have generally used, a strip of lint tied round a thin piece of wood with a rounded extremity), or expectorated shortly afterwards. It may reappear subsequently at other points, which require the same treatment. When the pellicle has existed for several days, the application of the acid mixture causes it to shrivel and become dark in colour, and seems to check the serous secretion proceeding from it so as to oppose its specific action on the adjacent mucous membrane. The application, during the first few days, was generally repeated twice in the twenty-four hours.

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[1] Memoirs on Diphtheria, New Sydenham Society, p. 138.

[2] Monthly Journal of Medical Science, Dec., 1852.

"Throughout the progress of the disease, I found alum gargles useful in checking the excessive secretion from the mouth and fauces. I had not treated many cases before I found the necessity of resorting (in most cases from the very commencement) to stimulants, and the most strongly nutritive diet, as brandy and beef-tea; and these, in general, could not be withdrawn until an advanced period of the convalescence. After the first few days, and when, in general, diaphoresis had been established, I discontinued the use of the acetate of ammonia, and substituted quinine, dissolved in the muriated tincture of iron; a combination which was of great service in restoring tone to the system. Cod-liver oil, also, was in many scrofulous-looking subjects, who suffered severely from diphtheria, of great value in this respect. I did not employ mercury in the cases of diphtheric croup, as the report of the trials made by Bretonneau did not offer much encouragement, and as most of the subjects so affected presented strong indications of the scrofulous diathesis; the sulphate of copper was used in two cases; and in one, as formerly noticed, with success.

"Tracheotomy was proposed in one case, but was declined by the parents, on the ground of their having heard of a case in which it had shortly before been performed with a fatal result.

"In conclusion, I may mention that, of the last nineteen cases treated, as I have endeavoured to describe, only one died; and this great diminution in mortality I ascribe not so much to the diminished virulence of the epidemic, as, in part, to a more suitable method of treatment having been adopted than at the commencement, but chiefly, to nearly all the later cases having been seen early."

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10. *On the Epidemic of Variola in the Canton of Geneva in* 1858–'59.—The following is the summing up of M. Marc D'Espine's elaborate memoir on this subject:—

"The epidemic of 1858–'59 has been by far the most severe of all those which have visited the canton since the introduction of vaccination. It attacked 21 individuals in 1000 inhabitants, and gave rise to 2.3 deaths, one-half of these depending upon a hemorrhagic cause. There are probably few of the countries of Europe which have been recently visited by this disease that have paid so large a tribute to it as the Canton of Geneva. The *mortality* has been 10.8 per 100 cases—45 per cent. in the non-vaccinated and 9.5 per cent. in the vaccinated. How considerable this proportion is may be judged by the results of the inquiry instituted by the London Epidemiological Society, from which it resulted that the mortality in different countries of Europe oscillated between 0 and 12 per cent. in the vaccinated, and between 15 and 53 per cent. in the non-vaccinated. This great mortality of Geneva, exceeding that of any other locality or town situated in the basin of the lake, is explicable by the large number of cases of *hemorrhagic variola.*

Complete unanimity exists among the documents furnished upon the Genevese epidemic, and those derived from other countries as to the greater liability of *males.* The relation is four to seven females for ten males, according to the epidemics or localities.

The *elective age* of natural variola is childhood and infancy. In countries in which vaccination is but little or not at all practised, variola attacks but few adults; but in proportion as a population has been more generally, and for a longer period, submitted to the vaccine influence, variola attacks a larger proportion of the older vaccinated, and spares children protected still by recent vaccination. In those countries in which nearly the whole of the new-born infants have been vaccinated for a long time past, it is from the twentieth to the twenty-fifth year that variola attacks most of its subjects; children below ten years being rarely affected.

Revaccination, made at opportune periods, greatly increases the chances of preservation, and evidently alleviates the disease in those individuals whom it has not been able to secure against the attack. It seldom succeeds in producing satisfactory pustules until after ten years of age. On this account, then, and because the first vaccination affords sufficient protection at least until ten years, it is at about from the twelfth to the fifteenth year that the first revaccination should be performed. A second may be resorted to at about the age of thirty; but this is of less consequence than the first, inasmuch as the examination of facts show that the chance of contracting variola diminishes much after the age of thirty. Nevertheless, just as the more general practice of vaccination has transposed the age of the maximum of frequency of variola from infancy to the fifteenth, twentieth, or even the twenty-fifth year, a generalization of the practice of revaccination at about the twelfth or fifteenth year may thrust back this maximum beyond thirty years; and we may predict that with the progress of primary vaccination, a second towards the thirtieth, and even a third towards the fortieth year, may one day become requisite. Vaccination or revaccination, practised even at the height of an epidemic, when complicated by an immediate invasion of the variola, neither modifies the progress of this, nor is itself modified by it. We may therefore vaccinate during an epidemic with impunity.

It would seem that a first variola preserves somewhat more certainly from variola than a first vaccination; but that if variola does supervene, that which is secondary is more fatal than is the varioloid following vaccination.

Cow-pock appears to succeed somewhat better than the chain of Jennerian virus, both as a prophylactic, and as to the pustules it gives rise to; but virus passed from man to the cow, and then from the animal to man, derives no advantage from such passage.

Epidemic variola attacks preferentially the strong and healthy portion of a population, rarely following an acute disease, or complicating a chronic diathesis. Pregnancy and alcoholism are two conditions in which variola is found oftener arising than in disease properly so called; but the prognosis is far more favourable in variola occurring in a state of health, or in the course of a normal pregnancy, than among persons seized under different conditions. The disease is especially fatal among those who have committed abuses of alcoholic drinks.

The epidemic of the Canton of Geneva, and of other districts situated in the basin of the lake, has furnished in every hundred cases of the disease sixty or seventy cases of direct and slight variola, and from thirty to forty cases of confluent or dangerous variola. Intense prodromes were not always followed by the dangerous form of the disease, but slight prodromes were always succeeded by a slight and benign form. Suppurative fever was manifested in the majority of the unvaccinated and in five per cent. of the vaccinated. Some instances of confluent variolous eruption, strictly limited to the face, were noted during the epidemic, and cases of *variolæ sine variolis*, few in number in Geneva itself, were met with in more abundance in other localities.

The *hemorrhagic form* was manifested at all the points of the basin of the lake at which the variola appeared, but with varying frequency in different localities. The Canton of Geneva exhibited the largest proportion, seven per cent. of the cases presenting the hemorrhagic form. At Aigle and Ivorne, where the number of cases were ten times more numerous than at Geneva, there were scarcely seven hemorrhagic variolas in 1000 cases. In the Genevese epidemic one case in five of hemorrhagic variola were cured, but in these the hemorrhage consisted merely in epistaxis or metrorrhagia supervening during the course of the variola. There were very few cutaneous hemorrhages among the cases cured. The hemorrhagic form was observed to be twice more frequent among the unvaccinated than the vaccinated; but eliminating the slight cases, which belonged exclusively to the vaccinated, and comparing only the serious cases of the two categories, we then find more hemorrhagic cases among the vaccinated. Comparing the deaths, there were twenty-three per cent. of the unvaccinated, and sixty-five per cent. of the vaccinated which presented the hemorrhagic form; so that while it is only one of various causes of death among the unvaccinated, it is the chief, if not the only cause among the vaccinated. It was observed that hemorrhage complicated a great number of cases of different diseases during the autumn of 1858, the period when the hemorrhagic form of variola was at its maximum of frequency at Geneva. It was chiefly between the ages of twenty and forty that this hemorrhagic form was observed among the vaccinated. Death occurred about the sixth day (the third of the eruption) in one-half of the fatal cases.

The *mean duration* of the variola at Geneva was fourteen days in cases which recovered, and eleven and a half days in those which succumbed. The mean duration of the prodromes was from three to four days, and that of the eruption, until the period of desiccation or suppuration, from three to seven days. In some cases there was observed a successive development of the eruption, so that certain of the papulæ appeared five or six days after the first, and died away without undergoing further development."—*Med. Times and Gaz.*, Dec. 17, from *Archives Gén.*, tom. xiv.

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11. *Epidemic of Variola in Prussia in* 1858.—Variola, which had acquired a considerable extension in Prussia during 1857, increased very much in 1858, both as regarded the number of localities invaded, and the number of individuals attacked. In some places it assumed an intensity which called to mind the ravages of the cholera. In 1857 there occurred throughout the entire monarchy 8,922 cases, but in 1858 there were 30,843 cases observed in 2,668 localities. Of this number 2,789 individuals died, a mortality therefore of 9 per cent., that of 1857 having been 10 per cent. The provinces in which the disease was most prevalent were those in which were the slightest mortality (7 or 8 per cent.) as compared with Westphalia (15 per cent.), where it was much less common. This has arisen from the slighter cases having been more promptly reported in some provinces than in others. Some districts exhibited a remarkable amount of mortality, as did others as remarkable a mildness. Thus while in the Arnsberg district the mortality rose to 20 per cent., in the Cologne district it was not more than 3 per cent. Of the 30,843 cases, 8,634 were children under 15 years of age, and 22,209 individuals older than 15. Of the children, however, 15 per cent. died, and of the adults 7 per cent. This disposition of the disease to prove fatal in children exhibited itself very markedly in certain localities. Thus in Berlin 23 per cent. of the children and but 5 per cent. of the adults died; in the government of Frankfort, 9 per cent. as compared to 2 per cent.; in the government of Magdeburg, 19 per cent. as compared to 4 per cent.; and in that of Arnsberg, 31 per cent. children to 11 per cent. adults. In very few localities, indeed, were the proportions alike in both cases. Berlin has not been free from variola during the last twenty-six years, the number of cases having varied from so few as 6 in 1855, to 690 in 1850; but in 1858, the epidemic which had commenced in 1857 (with 596 cases), gave rise to 4,535 cases with 406 deaths.

Of the 30,843 patients, 25,995 had been vaccinated, and 4,758 were unvaccinated. There were, therefore, 15 per cent. unvaccinated. The proportion was 10 per cent. in the adult (2,331 in 22,209 cases), and 28 per cent. in the children (2,427 in 8,634 cases). Of the 25,995 vaccinated, 1,730 died, *i. e.* 7 per cent.; and of the 4,758 unvaccinated, 1,055 died, *i. e.* 22 per cent. A mortality of two-thirds less in those submitted to vaccination, strongly exhibits the power of this in mitigating the severity of the disease. This influence is somewhat less manifested in the children than in the adults; for while of the 6,187 who had been vaccinated, 503 (8 per cent.) died; of the 19,808 of the vaccinated adults, 1,227 (6 per cent.) died. The mortality in the non-vaccinated also varied considerably. Of 2,427 children, 782 (32 per cent.) died; and of 2,331 adults, 273 (12 per cent.) died. Summing up the figures, we find, then, that in vaccinated children 8 per cent., and in unvaccinated 32 per cent. (*i. e.* four times as many), die; in vaccinated adults 6 per cent., and in unvaccinated 12 per cent (twice as many), die. These facts surely speak highly for the protective power of vaccination, and for its beneficial influence on the course of the disease. The whole of the recruits for the army, about 40,000 per annum, are revaccinated; and revaccination being always resorted to when epidemics exist, the prevalence of small-pox within its ranks has been almost entirely prevented.—*Med. Times and Gaz.*, Feb. 11, 1860, from *Medicin. Zeitung*, 1859.

12. *Variolous Orchitis and Ovaritis.*—M. BERAUD draws attention, in an essay in the *Archives Générales* (tom. xiii.), to the frequency of the occurrence of orchitis during the course of variola, a coexistence quite ignored by writers on the disease, and only casually glanced at by MM. Velpeau and Gosselin. Of its reality the author has been able to convince himself by clinical observation, and by an examination of the large number of bodies of persons dying of variola brought for dissection during the three years he was prosector.

Pathological Anatomy of Variolous Orchitis.—The affection has been observed under two forms; *peripheric* orchitis, by very much the most frequent form, and a *parenchymatous* orchitis. The *peripheric* form, again, is divisible into two distinct varieties; in one of which inflammation of the serous membrane is the essential feature, and in the other an inflammation of the tail of the epididymis, accompanied by a plastic deposit.

The inflammation of the *tunica vaginalis* is in the great majority of cases partial, the parietal layer, too, being almost exclusively affected. At the inflamed spots, which are usually situated below, the serous membrane is injected and rugous, and sometimes there is an infiltration resembling chemosis. There is usually a small quantity of limpid or yellowish fluid, which is also generally accompanied by false membranes of a bright yellow colour, floating in the liquid. They have a striking resemblance in colour to the contents of variolous pustules. Besides the vaginalitis, in most of the cases there is a *plastic deposit* near the tail of the epididymis. It is of a yellowish colour, much resembling the plastic matter met with in the tunica vaginalis. Sometimes so small as to be hardly visible, in most cases the deposit varies from a small almond to a filbert in size. Its consistency is considerable, so that it is not crushed when pressed. Its structure is laminated, like the layers deposited within an aneurismal sac. The testicle, as well as the rest of the genito-urinary apparatus, remained in this form unaffected.

The *parenchymatous form* of variolous orchitis is of much rarer occurrence, the author having only met with one instance, which he gives in considerable detail.

Causes and Mode of Production of Variolous Orchitis.—With respect to the cause, nothing in fact can be stated beyond that it is due to the variolous condition prevailing. Its occurrence will, however, be found to be one of considerable frequency, when attention is more directed to the subject; and the author did not find it wanting in more than three or four out of twenty cases of fatal variola that came under his notice. Although occasionally met with in lads, it is mostly found at the adult age, when the organ is in full vigour. Its occurrence does not seem to be favoured by a prior morbid condition, for in almost all the author's cases the most complete integrity of the organ was found to exist. Tempted at first to believe that the inflammation in the peripheric form was propagated from the skin to the serous membrane, the author soon saw reason to abandon this view, and to conclude that it was primarily and spontaneously developed at the serous surface, as also that it was quite independent of any so-called metastatic action.

Symptoms of Variolous Orchitis.—With few exceptions the orchitis is bilateral, the left side being that generally most seriously affected. The affection of the testicle, too, appears to come on at the same time with the eruption of the skin, and to undergo development simultaneously with it. In the peripheric form one of the earliest signs is tumefaction, but this is usually but slight, confined to the lower portion of the testis, and accompanied with but little fluctuation. There is no redness of the skin beyond that induced by the presence of pustules; but the pain and tenderness are very considerable. A very remarkable sensation of *frottement* is produced in bringing the two opposite surfaces of the tunica vaginalis together by gently pressing up the testis towards the ring. Where there is the fibrinous deposit near the tail of the epididymis, this gives rise to a small painful tumour in that region. When the active inflammation of the serous membrane is coexistent with this deposit, the tumefaction and pain are much more considerable than when either of these states exists alone. The parenchymatous form is characterized by different symptoms, accordingly as the testis is alone affected, or is so in common with the tunica vaginalis: but, as already stated, this form is very rarely met with.

Termination and Treatment of Variolous Orchitis.—The only termination of the peripheric form that has been observed is by resolution, although abscess might have been predicated from the violence the inflammation sometimes assumes. It is probable that some of the so-called *critical abscesses*, observed at the termination of variola, are really examples of the termination of an orchitis which originated at the commencement of the eruptive stage of the variola. The cellular tissue surrounding the tail of the epididymis, is in such case the probable seat of the abscess. The mere inflammation of the tunica vaginalis easily undergoes complete resolution. In general towards the twentieth day the patient is cured both of the principal disease of this concomitant affection: and there is no example of the orchitis passing into a chronic condition—the plastic deposit around the epididymis requiring, however, a variable period for its entire removal. As to treatment, that this need not be active is evident from the fact of the affection usually passing unperceived and becoming spontaneously cured. Still, it is probable that the so-called critical suppurations met with in the scrotum, and met with at the end of variola, might be prevented by attention being paid to the earlier stage of inflammatory action. The author suggests the application of *emplastrum Vigo* to the scrotum, as a means both of limiting the development of pustules, and of beneficially influencing any serous inflammation that may exist. A suspensory bandage should be employed from the commencement.

Variolous Ovaritis.—The author's attention was directed to this by analogy: and observation has since confirmed his anticipations. Although he has repeatedly observed the symptoms of the affection clinically, and has no reason to believe it is rarer than the orchitis, he is at present in a condition to publish only three cases verified by autopsies. More cases will doubtless soon follow now the subject has been brought forward. He believes that there is a peripheric and a parenchymatous form of the affection; and that the prognosis will not be found so favourable as in the case of orchitis. May not some of the instances of peritonitis supervening upon variola have originated in this condition? At all events, in future, the fixed pain and tenderness in the iliac regions observed during variola calls for treatment by leeching, etc.

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13. *Dilatation of the Stomach.*—M. Rilliet, of Geneva, having met with two cases of this affection, has taken the occasion to prepare a small monograph upon the subject. With the exception of Duplay's collection of cases, published in the *Archives* in 1833, there has been nothing special written about it, although it is noticed in most treatises of pathology. It has, indeed, been too much regarded as merely appertaining to the domain of pathological anatomy, or as constituting only an unimportant epiphenomenon of a necessarily fatal disease. It may, however, be the result of a purely dynamic influence, as paralysis, or may be connected with a curable lesion, such as simple ulcer of the stomach. When it is added that dilatation of the stomach has given rise to serious errors of diagnosis, enough will have been said to show that its consideration is not devoid of practical interest. Allusion here is not intended to be made to the state of temporary dilatation met with in tympanites or bulimia.

We have no exact mensurations of the stomach in the varying conditions of emptiness and repletion; but we may consider dilatation to exist when the large curvature descends to the level of the umbilicus, and that the dilatation is very great when it reaches the pubis. Between these two extremes there may be various degrees; but what especially characterizes a morbid dilatation is the ease with which it is produced, and the difficulty or impossibility there is for subsequent contraction to take place. Great dilatation of the stomach may, indeed, be produced by enormous eating; but then, in proportion as the organ gets rid of its superfluity, it resumes its normal size and position. But in the morbid condition, even when it has become quite or partly empty, it remains just as dilated, the muscular coat having in great part lost its contractile energy. In proportion to the increase of the size of the stomach the other organs undergo displacement, and analogous phenomena are observed to those which ensue upon the development of a tumour in the cavity of the abdomen. In a practical point of view, it is of importance to know that the stomach may become so dilated as to fill the entire abdomen. In proportion as the dilatation increases, the cardiac and pyloric orifices approach each other, the large curvature increasing and the small one diminishing more and more.

Causes.—It is an opinion generally stated in pathological treatises, that in cases of morbid dilatation there will be almost always found considerable narrowing of the pyloric orifice; but this statement is made far too absolutely, inasmuch as dilatation may exist without any such narrowing, although, doubtless, when the tunics of the stomach have undergone changes in the vicinity of this sphincter, this suffices to favour the production of morbid dilatation. It is certain that dilatation is most frequently met with as coinciding with cancer of the pylorus; but even in this case it may be as dependent upon atrophy or destruction of the muscular tissue as upon a stricture, properly so called. Dilatation of the stomach has been especially met with between the thirtieth and sixtieth years of age; and the histories of various cases show the influence which depression of the vital forces exercise in its production, and that quite independently of the presence of cancer. Injurious dietetic habits may favour its production; and it is said to be not infrequently met with in drunkards.

Symptoms.—Vomiting and the condition of the abdomen are the chief characteristics. The abundance of the vomitings is out of proportion to the amount of matters ingested; and they may contain undigested substances taken days or weeks previously. They have a special kind of rancid or putrefactive smell; and do not usually occur daily, but, as a kind of crisis, at from two to ten or fifteen days' interval. These crises increase in frequency as the disease makes progress. In some rare cases there is no vomiting at all, and in some of these the duodenum seems to replace the œsophagus, and the stomach is emptied per anum. The absence of vomiting in these exceptional cases is probably due to the intensity and rapidity of the paralysis of the stomach, to the permeability of the pylorus, and to the prevalence of anorexia having greatly diminished the amount of ingesta. Painful and excessively acid eructations and regurgitations are also observed. The condition of the *abdomen* should be examined both prior and subsequent to the vomiting; when the results obtained by percussion and *ballottement*, while the stomach is in a state of repletion, will more or less disappear after it has emptied itself, and may then be reproduced by the ingestion of liquid or solid substances. When there is no vomiting the diagnosis is difficult, and error may easily arise. Excessive frequency of vomiting may, on the other hand, be also a cause of error, by reason of the absence of obvious abdominal tumour.

Duration.—Dilatation of the stomach is generally very slowly produced, and its course is that of chronic affections, terminating after several months in cachexia, the result of inanition, fever not manifesting itself. The disease may be cut shorter when there is perforation consequent on ulceration, or when the strength has become exhausted by fruitless vomiting.

Prognosis.—Although dilatation of the stomach must be regarded as incurable when dependent on cancer or upon an almost complete obliteration of the pylorus, it may disappear when it has arisen from a purely dynamic cause, or when it has arisen from not very profound lesions—always supposing that it has not reached its extreme degree.

Treatment.—In certain cases we cannot only relieve this condition, but prevent its recurrence. When it does not arise from a mechanical obstacle, and even then to a certain extent, the dilatation is produced under the influence of dyspepsia—giving to the term dyspepsia its widest signification, as dependent upon the disturbance of the chemical or the mechanical action of the stomach, or the two actions united. This being the case, the treatment proper for dyspepsia must be put into force; and the following propositions admit of special application to the case of patients menaced with dilatation of the stomach. 1. Alimentary substances should be taken in small volume, avoiding all that are indigestible and flatulent. 2. Slow and thorough mastication and insalivation. 3. Only small quantities of fluid to be drank, and that of a tonic character, as old Burgundy, Madeira, or Sherry. 4. A sufficient period to be left between each repast, and all physical and intellectual labour to be avoided for some time after. 5.

Stimulants suited to excite the secretions and movements of the stomach (as mint tea, aniseed, alkalis, pepsin) should be had recourse to, but not abused. A bitter infusion to be habitually taken, such as calumba or quassia, to which minute doses of tinct. of nux vomica may be added. If the disease is once formed, the dietetic precepts must be rigorously enforced, and especially as regards the small amount of aliment taken at a time. Any articles of food which are returned by vomiting unchanged must be suppressed, and others substituted. The paralysis of the stomach may be combated by means adapted to stimulate muscular contractility, as strychnine or electricity, and by others which oppose mechanical obstacles to the dilatation, such as flannel bandages, compressive belts, and astringent plasters.

M. Rilliet details two cases which have come under his own notice. The *first* occurred in the person of a gentleman aged 72, who, while in good health, was seized with symptoms of dyspepsia. There were acid and gaseous regurgitations and constipation, but no vomitings. The abdomen increased in size, and after seven weeks' duration of the affection a tumour was recognized, which nearly filled the abdomen, and was supposed to arise from the omentum. At the autopsy enormous dilatation was found, the food which had been taken for weeks being found accumulated in the stomach. There was no scirrhus, but a simple ulcer existed on the level of the pylorus. The *second* patient had from the age of twenty been a great and rapid eater, and the subject of obstinate dyspepsia. The disease to which he succumbed commenced two years after severe hepatic congestion, and lasted about ten and a half months. At first it seemed like a gastritis; but the symptoms of dilatation were soon sufficiently marked to enable the diagnosis to be made during life. At the autopsy there was found, besides the dilatation, a stricture of the pylorus, produced by vegetations of the mucous membrane and a thickening of the submucous tissue, the result probably of the cicatrization of a simple ulcer, the microscope having shown the absence of the characteristic elements of cancer.—*Med. Times and Gaz.*, Jan. 21, 1860, from *Gazette Hebdomadaire*, 1859, Nos. 17, 18, 20.

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14. *Pathology and Therapeutics of Typhus Fever.*—The No. of the *Glasgow Medical Journal* for Jan. 1860, contains an interesting paper on this subject by Dr. Jos. Bell, one of the Physicians to the Glasgow Infirmary. The following are his concluding propositions:—

1. That in numerous cases of typhus, about the fifth, sixth, or seventh day of the attack, the impulse and systolic sound of the heart become feeble and ultimately imperceptible.
2. That these symptoms indicate a morbid alteration in the structure of the muscular tissue of the heart, especially in the walls of the left ventricle.
3. That this alteration resembles the usual changes which result from congestion and inflammation of muscular structure.
4. That the nature of this pathological change requires further examination and research, because the evidences on which the doctrine of its non-inflammatory origin rest, are not conclusive; the circumstances on which Louis and Stokes have placed reliance being not uniformly present.
5. That the beneficial influence of stimulants does not prove the non-inflammatory nature of the morbid change, because, in asthenic inflammation, a stimulating treatment is always necessary.
6. That whether or not the pathological alteration be owing to inflammation, the softening must be regarded as one of the special secondary effects of typhus.
7. That the proper treatment is to maintain the action of the heart by stimulants.
8. That in cases of cerebral and pulmonary disturbance arising in connection with the symptoms of cardiac softening, a stimulating plan of treatment is indicated.
9. That the presence or absence of the physical symptoms diagnostic of softened heart, may be relied on as affording trustworthy evidence, by which the sthenic or asthenic nature of these cerebral and pulmonary affections can be determined.

From these propositions it follows as a *corollary*, that it is the duty of the physician to devote the strictest attention to the action of the heart, especially as regards its impulse and sounds, throughout the course of every case of typhus.

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15. *Etiology and Treatment of Peritonitis.*—Dr. HABERSHON read a paper on this subject before the Royal Medical and Chirurgical Society, December 13, 1859. The author first alluded to the value of a knowledge of the causes of disease as a guide to right treatment, and to the importance of considering local disease as connected with a constitutional or general origin. In reference to peritonitis, he remarked that although written and spoken of as an idiopathic disease, we did not find any proof that the malady really existed in that character. An analysis of the records of 3752 inspections after death at Guy's Hospital, and extending over a period of 25 years, was brought forward as confirming this statement, and as an indication of the general plans of treatment. 501 were instances of peritonitis, and they were divided—First, into those in which the disease is set up by mischief extending to the peritoneum from without, as from adjoining viscera, injury, or perforation; secondly, those which might be called blood-diseases, connected with albuminuria, with pyæmia, or puerperal fever, or erysipelas; and thirdly, those in which general nutritive change in the system is followed by acute or chronic peritonitis, as in struma or cancer, or after continued hyperæmia of the capillaries of the serous membrane, as in disease of the liver or heart, where very slight exciting cause suffices to produce acute mischief. Of the *first* division, there were 266 instances, and 102 of these arose from internal or external hernia, or mechanical obstructions, and in 19 of the internal kind. Reference was made to the mode in which the extreme tension of the intestine leads to intense congestion of the mucous membrane, diphtheritic inflammation, and ulceration in the direction of greatest tension, leading to perforation in many cases. Different modes of treatment that have been used were referred to. and the use of opium alone advocated; the addition of calomel, as tending to increase the change of the mucous membrane just mentioned, without any corresponding benefit, should preclude its use. 35 were injuries or operations directly affecting the serous membrane, and in 14 had followed tapping; many injuries of the abdominal viscera, proving fatal in a very short time; this number was lower than might be expected. The value of rest and of opium in all these cases as recommended by Dr. Stokes and Dr. Graves in the treatment of perforation, was dwelt upon, as well as the injury that would result from mercury in tending to prevent localization of the mischief and increased depression. 56 were perforation of the intestine; 10 from hernia, 9 from the appendix cæci, 2 from the cæcum, 4 from cancerous disease of the colon, 9 from disease of the stomach, 15 from typhoid disease of the ileum, 4 from struma, 2 from ovarian adhesions, and 1 from cancerous disease of the vagina. In 5 other cases of fever, peritonitis had resulted, in two of which the perforation was not complete; 1 was of doubtful character, for the ulceration of the ileum was slight, and phthisis was also present. In 19 cases fecal abscess had taken place. In 42 cases the peritonitis was caused by extension of disease from the bladder, uterus, or pelvic viscera; thus, 10 from lithotomy, 6 from ovarian disease, and 14 from calculus in the bladder, cystitis, or stricture. In 11 cases, disease of the liver or gall-bladder had led to direct extension of disease to the serous membrane, and in 3 other cases it followed acute inflammatory disease of the colon, and from disease of the cæcum, not previously mentioned in three instances. Thus 261 cases from the 501 were produced by disease not commencing in the serous membrane, but propagated to it from adjoining parts; and the author stated that in each of these instances, as far as medicinal treatment could be of service, he believed that the plan suggested by Drs. Stokes and Graves in instances of perforation of the stomach was of the greatest value, in promoting rest to the intestines, the localization of the mischief, and the acceleration of reparative changes; in many instances the local depletion and the external application of anodyne remedies might be combined with advantage; but that mercury, in the form of gray powder or calomel with opium, was injurious rather than otherwise, as tending to prevent adhesions, exciting action from the bowels, or rendering their contents more fluid, and increasing the depressing effects of the disease on the nervous system. The *second* class of cases consisted of those in which peritonitis was

set up by a changed condition of the blood, as in albuminuria, pyæmia, etc. Sixty-three instances were connected with Bright's disease, and in nearly all of an acute kind. It was stated that the peritoneum was rarely the only serous membrane affected. The treatment of the general disease was regarded as best calculated to remove the affection, assisted sometimes by counter-irritants; but that the ready salivation produced by mercurials did not afford corresponding benefits. Ten were puerperal in their origin; in 13 pyæmia following operations, local suppuration; and 5 others were with erysipelas. Instances were alluded to in which serous membranes became simultaneously affected, perhaps pyæmic, or rheumatic, or from renal disease; and 3 of these were mentioned, one where peritonitis was connected with pericarditis and pleurisy, a second with pneumonia and dysentery, and a third with pericarditis, pleuro-pneumonia, and obscure renal mischief. As to the treatment of these cases, it was regarded that the local affection must be almost lost sight of in the general treatment, and that local depletion and mercurial preparations would not promote the cure in such instances. The *third* class of peritonitis were those connected with general nutritive changes, as cancer, struma, etc., or where, with continued hyperæmia of the peritoneal capillaries in cirrhosis, or heart disease, a very slight exciting cause suffices to produce acute disease. 70 cases rose with struma, 22 acute and 48 chronic and acute. The varieties of the strumous form of disease were mentioned, leading sometimes to serous effusions, to general adhesions, to perforation, or fecal abscess. The ages were stated not to be limited to early life, many occurring between 30 and 40 years of age. It was urged that in all these cases the same general rules of treatment should be observed as in ordinary strumous disease, sometimes assisted by counter-irritants, very cautious local depletion, anodyne applications and opium; but the avoidance of purgatives and of mercurial preparations was recommended. 40 instances of peritonitis with cancer, besides those already mentioned, were next referred to, 9 in males, and 31 in females. In men, glandular organs were generally affected; and, in women, the ovaries or uterus; but, in 20 instances, the disease consisted of tubercles upon the peritoneum, generally with dropsical effusion; 19 of these were women, and 1 a man; the average age of the former 52, and evidently coming on after the cessation of ovarian functional activity. The inutility of diuretics, and the inadvisability of depressing measures, as mercurials, were spoken of; and it was stated, that paracentesis was often followed by increased effusion of lymph, and the best treatment consisted in sustaining the ebbing powers of life by every means in our power. The *last* cases were those of peritonitis associated with hepatic or heart disease. In 32 of this hepatic complication, 14 were chronic, 12 acute, and 6 acute and chronic. 5 had been previously referred to as rendered acute by tapping. In some instances pneumonia was present, and slight exposures to cold and wet evidently sufficed to induce acute changes. The degenerative arterial changes often found with cirrhosis were mentioned, and that this chronic state should be borne in mind in the treatment of the acute disease. It was stated that, in early cirrhosis, the usual treatment of peritonitis by calomel and opium was more serviceable than any other form of peritoneal disease, on account of the stimulating effect of mercurials on the glandular organs of the abdomen; but that even here it was not necessary to produce salivation to ensure the beneficial effects. 9 cases were connected with heart disease. The general causes of peritonitis were:—

From hernia (19 being internal)	102
" injuries; operations, as tapping, etc.	35
" perforations of stomach, ileum, cæcum, appendix, colon, etc. (other 13 included under hernia, etc.)	43
And leading to fecal abscess (2 otherwise mentioned) . . .	17
" ulceration, with *fever*, without perforation	5
" disease of the bladder or pelvic viscera; operations, as lithotomy, etc.	42
" abscess of the liver, gall-stone, etc.	11
" acute disease of the colon	3
" other disease of the cæcum	3
	261

From Bright's disease	63
" pyæmia, puerperal fever, etc.	31
" strumous disease	70
" cancer (12 before mentioned)	40
" hepatic disease (and 5 acute, from tapping)	27
" heart disease	9
	240

The author concluded with the following propositions: 1st. That peritonitis is never idiopathic in its origin, and that we do not find any such instance as acute disease of the peritoneum coming on from mere exposure to cold; in such case, the cold tends to render acute an already existing morbid state. 2d. That the consideration of the origin of the disease, either in a local or general source, is the best guide to treatment; whether—first, from extension of disease from adjoining viscera, as the ovaries, bladder, intestines, perforations, or injuries; secondly, from blood changes, as occur in albuminuria, pyæmia, or erysipelas; and thirdly, from almost imperceptible changes, or deficiencies, in general health, as in struma, or cancer, or climacteric changes, or as a consequence of the hyperæmia of cirrhosis, or heart disease. 3d. That, in the first form, perfect rest, the avoidance of food as far as possible, and the mode of treatment recommended by Dr. Stokes, in producing rest to the intestinal canal and peristaltic action, and diminishing the collapse and prostration consequent on the disease —constitute the best mode of treatment; using, as far as need be, other means, as anodyne applications, local depletion; and, in many instances, also seeking to remove the exciting cause, as in cystic disease, etc. 4th. That where peritonitis is a symptom of blood change, as Bright's disease, pyæmia, etc., it may be best relieved by the treatment of the primary disease; but that here opium is sometimes of great value, and more effective without mercurial combination. 5th. That in the treatment of the third class, the consideration of the cause is also our best guide; that strumous and cancerous disease should be regarded in their general relations; and in those connected with hepatic disease, the remembrance of the condition prior to the supervention of the peritonitis should prevent us from using means calculated to increase the primary mischief; and that any benefit due to mercurial action may be attained without mercurial salivation. 6th. That, in general, the benefit ascribed to mercury in the treatment of peritonitis is not established, and may, perhaps, be correctly attributed to the opium with which it is combined.

Dr. Copland said that the statement of Dr. Habershon could not be disputed, that in ninety-nine cases out of a hundred peritonitis, whether acute or chronic, was a consecutive, and not an idiopathic disease. In many cases, however, met with in children, it was difficult to determine what was the more immediate disease. It often arose from disorder of the digestive mucous membrane, from consecutive disease of the glands, especially the lacteal glands. In many of these instances the peritonitis was coexistent with tubercular inflammation of other serous membranes, as of the brain and pleura. The author's treatment appeared to be correct as far as it went. In the majority of cases salivation should be avoided, but there were some cases in which it was required. The author had overlooked a variety of medicines which were useful in cases of peritonitis consequent upon blood-contamination, especially the external application of turpentine by stupes or embrocations, which might go hand-in-hand with the opium treatment. In puerperal diseases scarcely a case could be successfully treated without the use of opium and the external application of turpentine. The most valuable portion of the paper were the statistics; as to the causation of the disease there was nothing new developed; and in regard to treatment the paper was very deficient.

Mr. Pollock said that most surgeons would agree with Dr. Habershon that, in cases of actual rupture of the intestine, mercury was worse than useless, and opium was the only treatment that could be adopted. In cases, however, where slight bruises of the abdominal wall were followed by peritoneal inflammation, producing constipation, mercury, with the addition of local or general depletion, was often the surgeon's sheet-anchor. He remembered the case of an old gentleman who was accidentally bruised in the abdomen while in bed, and who found his bowels in a state of discomfort for a few days. About a fortnight after constipation had set in he (Mr. Pollock) saw the patient. There was distinct tenderness, and a solid mass on one side of the umbilicus extending towards the pelvis, and it was concluded that there was a portion of intestine fastened together by the effects of inflammation, and not from any rupture. On the twenty-eighth day the symptoms had very much subsided, and the pain in the abdomen had almost entirely disappeared. During the whole period he had been taking mercury to a small extent, and on the twenty-ninth day the bowels acted for the first time. That, he thought, was a well-marked instance of success resulting from mercurial treatment with very little opium. In another case, occurring in a boy who was kicked by a companion, the mercury did not produce any marked effect till the boy was fully under its influence. He thought the author had not sufficiently distinguished the cases where mercury was injurious and where it was beneficial. He would ask whether Dr. Habershon, in cases of obstruction of the bowel, particularly the large intestine, had found the peritoneal coat of the intestines give way before the mucous coat? It was, he thought, of importance not to delay too long the opening of the large bowel when constipation had taken place from any cause situated in the ascending or descending colon. He had sometimes seen rupture of the peritoneum before the mucous membrane had given way.—*Med. Times and Gaz.*, Dec. 24, 1859.

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16. *The Importance of Free Respiration in Certain States of the Brain.*—Mr. Chas. Hunter read an interesting paper on this subject before the Western Medical and Surgical Society (Jan. 20, 1860). The necessity of attention to the respiration was considered chiefly of value: 1. In *coma*, from injury or disease, sanguineous or serous. 2. In narcotism of the brain. 3. In epilepsy. 4. In certain functional cerebral derangements, where a tendency to headache and lethargy exist. The strictly anatomical connection of the lungs with the brain having been alluded to, it was shown how, pathologically, disease of either of these organs might kill by its effects upon the other. 1. Cases of coma from cerebral injury and apoplexy were then cited, illustrating how death generally took place by apnœa; the practical point, therefore, indicated was, that life might not only be prolonged, but saved, by attention to the respiration, even in cases apparently the most hopeless. 2. In narcotism: the greater the insensibility in narcotic coma the more the respiration is affected; the more, therefore, it requires to be watched. Coma and narcotism both kill by the lungs; but several points of difference were shown to exist between the apnœa of coma and that of narcotism. In the apnœa of coma death is not generally (or at all events primarily) due to cessation of respiratory action, *i. e.* muscular paralysis; but to lung paralysis, evinced by extreme and rapid congestion of the lungs, accompanied by rapid effusion into the pulmonary air-cells and bronchial tubes. The death is apnœa by effusion, unless it can be warded off. The treatment for the apnœa of coma is venesection to relieve the congestion of the lungs, and prevent its further formation; but more especially important is the prone position (the prenopnœa of Dr. Marshall Hall), by which an enormous amount of bronchial effusion may be got rid of. Without the prone position the bronchial effusion may so accumulate, that the patient with coma may, in reality, die of narcotism from non-eliminated carbonic acid gas. Artificial respiration may not be necessary. A case of apoplexy of the medulla oblongata, and one of compression from injury, were related, in which no muscular paralysis existed. In the apnœa of narcotism, there is neither the rapid effusion, nor the great congestion of coma; but if death ensues, it is chiefly from musculo-respiratory paralysis. The pulmonary congestion is less than in cases of coma, for the narcotic influence diminishes the strength and frequency of the cardiac pulsation, which are unrestrained in coma. In the treatment of narcotic apnœa venesection is not necessary; nor is prenopnœa, to remove effusion; but it is especially necessary for a different reason, viz., lingual paralysis. Artificial respiration is here invaluable; if employed, however, without attention to the tongue, it may be useless. 3. In epilepsy: the normal state of the respiration is a point in the etiology of this

disease requiring, in Mr. Hunter's opinion, careful consideration. Many epileptics have a shallow, contracted, and very feebly-acting chest, which predisposes to, and must keep up, the epileptic tendency. Several patients were alluded to whose respirations were not only very limited in amount, but in number also, being less than one to four cardiac pulsations. This feeble lung-action acts injuriously to the epileptic in a twofold way; it tends to retain carbonic acid in the blood (to which gas many of the symptoms peculiar to the epileptic besides the seizure seems attributable), and also prevents the lungs acting freely as diverticula to the cerebral circulation. 4. Among the functional cerebral derangements were mentioned headache and lethargy, which free-respiration in the open air would often remove; also cases in which the respiration would sometimes, without any warning, become extremely difficult (as if from sudden deprivation of nervous influence). In such cases, fresh air, the inhalation of ether and ammonia, deep inspirations, forced (if the patient can effect them), assisted if not, appear to the author indicative and productive of great benefit in these conditions.—*Med. Times and Gaz.*, Feb. 18, 1860.

17. *On Stertor, and on the Varying Conditions upon which it is Dependent; with the Treatment necessary for its Relief.*—Mr. R. L. BOWLES read before the Royal Medical and Chirurgical Society (January 24, 1860) some very interesting observations on this subject. He commenced by stating that in the majority of instances, he had found, from experiment, that stertor arose from one of three conditions: 1st, from paralysis of the velum palati; 2d, from the paralyzed tongue lolling back in the throat; 3d, from the presence of mucus in the pharynx and air-passages. His attention was first attracted to this subject when assisting Dr. Marshall Hall in elucidating the subject of artificial respiration on the dead body. It was found that the position of the body invariably influenced the relations of the tongue, namely, that in the prone position it fell forwards and away from the pharynx; whereas, when the body was supine, it fell back towards the pharynx, and would form a serious obstacle to the passage of air into or out of the trachea. It was also observed that mucus or fluid ejected from the stomach tended to drain away in the prone position, and to remain in the back of the pharynx in the supine; and this would greatly increase the danger of apnœa in the latter. The author stated that, in November, 1857, he was called to a case of apoplexy, in which coma and stertorous breathing had persisted for some hours. The patient was wholly unconscious and uninfluenced by external impressions, and the pupils were contracted and immovable. Whilst watching the case, some fluid was ejected from the stomach, which lodged in the pharynx, and would have caused death by suffocation had not the patient been quickly turned on her side, and the fluid allowed to drain away. In this position the stertor entirely ceased, but on resuming the supine position it returned as loudly as before. The experiment of change of posture was tried several times, and always with the same result; and, what was equally remarkable, the general symptoms were greatly modified after the lateral position had been maintained for a few minutes; the pulse became calmer, the skin cooler and less bedewed with moisture, the eye sensible to the touch; and the general sensation returned to such an extent that the patient evinced signs of discomfort at the removal of a mustard poultice. In a case of epilepsy in which stertorous breathing had supervened, the moment the lateral position was assumed the stertor ceased, and the patient very soon became conscious, and recovered. Other cases were related, all of which tended, with the foregoing, to demonstrate: 1st, that the paralyzed tongue *may*, under certain circumstances, cause even death by suffocation; 2d, that stertor arises from the tongue falling back in the supine position of the body, so offering a serious impediment to the respiration; 3d, that mucus (another respiratory impediment) drains away when the patient is placed on the side; and 4th, that great improvement of the general symptoms follows the establishment of easy breathing in the lateral position. The anatomy of the parts was then referred to; and it was shown that the pharynx, having only a fixed boundary posteriorly, may have its capacity materially altered by the ever-varying positions of its sides, of the soft palate, the tongue, and the larynx. With the closed mouth. the tongue cannot, in the majority of cases, reach the

back of the pharynx, as it is fixed to the inside of the symphysis of the jaw; but when the jaw drops, the symphysis describes the arc of a circle, and approaches very nearly to the spine, thus allowing the tongue to come in contact with the posterior wall of the pharynx. Diagrams of some dissections were shown, to illustrate the position of the tongue and epiglottis in the various positions of the jaw and of the body. If the chin be bent upon the sternum by raising the head with pillows, the tongue will lie in dangerous proximity to the pharynx, even if the mouth be closed. Stertor was divided by the author into the three following varieties: 1st. Palatine stertor. In this, if the mouth be closed, the soft palate is pushed upwards and backwards by the base of the tongue, and thus narrows the opening between the palate and the posterior wall of the pharynx. If the mouth be open, the velum palati drops upon the tongue, and vibrates as the air rushes between it and the tongue. 2d. Pharyngeal stertor, which is the most frequent in apoplexy, and by far the most dangerous. This variety depends upon the base of the tongue dropping back into the pharynx, and acting as a serious impediment to the passage of air; it occurs when the mouth is wide open, and is a harsher and sharper noise than either of the other varieties. 3d. Mucous stertor, which depends upon the presence of mucus in the bronchial tubes; it may exist alone, or in combination with either of the preceding varieties. A case was related, to show that palatine stertor, with closure of the mouth, may accompany deep coma; but it was considered that it was the rule for persons in deep coma to breathe through the mouth, and for this reason: the muscles of the jaw being paralyzed, the jaw drops and opens the mouth; whereas, the dilators of the nose, being also paralyzed, the alæ nasi are forcibly drawn by the in-going air towards the column of the nose, and thus close the orifice of the nares altogether. With reference to the importance of stertor, the author remarked that the impediment to the entrance of air into the lungs, as it tends to retard the flow of blood through the veins, might very possibly be the first step towards death in cases of apoplexy with degeneration of bloodvessels, or fracture with laceration of the sinuses or vessels of the brain; for the blood would make its way, where there was least resistance, through the wounded or ruptured vessel. If, however, there were no obstruction in its natural course, it would more probably follow that, than turn aside through an opening, in which perhaps a coagulum had already formed. Besides the ultimate dangers which might result from a persistence of stertor in apoplectic and similar conditions, the more immediate dangers of the supine position were pointed out—*e. g.*, 1st. Fluids or other foreign matters making their way into the larynx from the mouth or stomach. 2d. The falling back of the tongue, causing sudden and complete apnœa, which may occur in all cases of paralysis, whether from syncope, apoplexy, concussion of the brain, chloroform poisoning, suffocation from carbonic acid or drowning; for if a disaster arise from any of the above conditions, the patient is almost invariably laid flat on the back. The paper was concluded by the relation of a case, by Mr. Lewis, of Chester, of profound coma supervening upon several severe attacks of epilepsy, following each other in quick succession. When the patient was seen, the pupils were contracted and insensible; the pulse small, weak, and irregular; the surface pale, with cold, clammy perspiration; breathing irregular, slow, and extremely laborious. The stertor was very marked; very little air seemed to enter the lungs; the cheeks were puffed out during expiration. The patient was placed well over on his side. There was an immediate flow of saliva from the mouth, followed by a considerable quantity of sanio-mucous fluid. The breathing instantly became more free, and in less than a minute all stertor had ceased. The other symptoms gradually subsided, and in an hour's time, the bowels having been acted on by croton-oil, there was a partial return to consciousness, and the next day the patient was walking about the wards of the asylum.

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18. *Sugar in the Urine.*—M. Henry Musset states that "sugar in the urine does not necessarily imply the existence of diabetes. One may pass sugar with the urine, and yet enjoy perfect health. Dr. Blot has shown that sugar exists normally in the urine of all women during parturition, of nurses, and of a certain number of women during pregnancy. Dr. Leudet has shown in paraplegic

patients that there is a constant relation between the appearance of the nervous cerebral accidents and the glycosuria. Dr. Itzigsohn relates a remarkable case of traumatic diabetes, occurring in a blacksmith who had received a blow on the top of the head. Dr. Todd has also given a case of diabetes which was observed in a woman after she had received a blow on the head. Prout observed sugar in the urine of dyspeptics and aged persons, and Dr. Goolden in children during dentition. Thus, then, there are numerous circumstances, physiological and pathological, which, directly or indirectly, concur in the formation of sugar in the economy. Can we now, with M. Mialhe, explain the presence of the sugar in the urine, by the greater or less alcalinity of the blood, which in the latter case cannot transform the glucose—the glucose then becoming a foreign matter in the body, and so discharged by the kidneys? Or, with M. Bouchardat, shall we explain the glycosuria by supposing the presence of some peculiar principle, which has an action on starch like that of diastasis? Then, again, we have the explanation, resulting from discovery of the glycogenic function of the liver by M. Bernard, viz., that the function of this organ is impeded, and the sugar thrown into the general circulation. When, however, we consider, that in everybody there are products which are returned by the lymphatics into the general circulation; that the transformation of starch goes on normally in the intestines; and that it is accomplished even in the mouth under the influence of the salivary diastasis; and if, moreover, we recollect—that glycosuria accompanies dentition, dyspepsia, certain cerebral disturbances, that it may be caused by irritation of the brain at the origin of the eighth pair of nerves; that it exists in pregnant and parturient women and nurses—are we not naturally brought to the conclusion, that diabetes is a neurosis troubling the harmony of the assimilating functions?"—*Med. Times and Gaz.*, Dec. 10, from *L'Union Méd.*

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19. *Action of Iodide of Potassium on Phthisis.*—Dr. R. P. COTTON gives (*Med. Times and Gaz.*, Dec. 24, 1859) the results of his experiments with this article on twenty-five patients taken indiscriminately from those who came to the Hospital for Consumption, Brompton.

"The iodide was administered in doses varying from five to seven grains, twice, and in some instances, three times a day, simply dissolved in pimenta-water. The cases consisted of thirteen males and twelve females, their respective ages varying from 16 to 44, the majority being about midway between the two. In eleven, the disease was in its first stage; in two, softening had commenced; and in twelve, there was unmistakable evidence of more or less pulmonary excavation. The medicine was continued, according to its effects, from a period varying from three to ten weeks. Whenever it seemed, after having been taken for four weeks, to be producing little or no good, it was discontinued, and the subsequent progress of such patient under other treatment carefully observed.

"In two instances, headache was complained of; in six, there was more or less dyspepsia, flatulence, or loss of appetite; and in three cases, hæmoptysis occurred. Whether such symptoms were the *post* or the *propter hoc* it was rather difficult to determine; there seemed to be no reason, however, for suspecting the latter in the cases of hæmoptysis; but, from subsequent observation, the headache and dyspepsia were fairly attributable to the iodide.

"In order to obtain comparative results, in eight cases the iodide was combined with cod-liver oil, and in seventeen administered alone.

"There was a visible improvement in eleven of the patients; six of these being in the first stage of the disease, and the rest more advanced; in six instances there was no change either one way or the other; and in eight the disease advanced more or less rapidly.

"In making an analysis of the eleven improved cases, it was found that in six of the number the iodide had been taken in conjunction with cod-liver oil, and that in five it was taken alone. The most marked improvement was certainly where the two had been associated. In only three cases, where the iodide had been taken by itself, had the patient's weight increased, whilst in ten it had diminished, and in four remained unchanged. Out of the entire twenty-five cases, therefore, only in five could it be fairly argued that the iodide had been of service; and when it is remembered that patients coming into the hospital are immediately placed under greatly improved circumstances, both as to general hygiene and diet, the good effect of the medicine, even upon these five patients is very far from being demonstrated.

"Four patients, who either had received no benefit from the iodide, or with whom it had disagreed, improved afterwards very much, and gained considerably in weight, under the administration of steel and cod-liver oil.

"In four cases, during the use of the iodide of potassium, there was a marked amelioration in the pulmonary symptoms; the breathing became less difficult, and the cough and expectoration diminished; but here again it is fairly open to question whether such improvement was due to the iodide, or to other and concomitant circumstances.

"From the above observations I think we may arrive at the following conclusions, viz:—

"1. Iodide of potassium given in moderate doses to consumptive patients, occasionally produces dyspeptic symptoms; but more commonly is unattended by any marked result either in one direction or the other.

"2. Under its use the weight is seldom increased, but either remains stationary, or is diminished; the latter effect being of most frequent occurrence."

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20. *Treatment of Tetanus by Aconite.*—Dr. Leonard W. Sedgwick, of Boroughbridge, relates (*British Medical Journal,* January 28th, 1860) the following instructive case of this:—

"A farmer's labourer, aged 30, strong and muscular, healthy and temperate, in jumping off a cart with a dung-fork in his hand, stuck it into his left thigh about three inches above the knee-joint on the inner and anterior surface. For some days the knee was stiff, and he was unable to work. Ten days afterwards, being much better, he began chopping sticks. About noon he got wet; and, whilst at his dinner, he was seized with a sharp pain between his shoulders; at the same time he thought he could not open his mouth as well as usual. On the eleventh day, he was unable to work from acute pain in the back and jaws.

On the twelfth day from the accident, and the third of the tetanus, I saw him. He was then lying on his back, perspiring intensely, with an anxious, painful expression of countenance. His jaws were nearly closed; the muscles of the back were very rigid; the loins were almost always some distance off the bed; the arms were not much affected; the legs were stiff; the abdominal muscles hard. Pulse 95, not very full. His tongue was moderately clean. The bowels were regular. He had no sleep. The urine was natural. I ordered him beef-tea and six ounces of brandy in the day; and five minims of Fleming's tincture of aconite in water every four hours. I laid open the wound, and removed a considerable piece of woollen cloth, which had been driven in from his trousers by the fork. To save repetition, I may here state that the wound healed steadily.

Fourth day. He was much the same.

Fifth day. The spasms were not so constant, but more violent. No aconitism had appeared. Seven minims of the tincture of aconite were given every four hours.

Sixth day. He was worse. When the spasms were relaxed, which was only for a very few minutes, the pulse was 68; during the spasms, it rapidly rose to 120, and became smaller. Opisthotonos was extreme; the jaws were clenched. Ten minims of the tincture were given every four hours; and he was ordered to have ten ounces of brandy daily.

Seventh day. Tingling in the hands and feet and slight giddiness having come on, the spasms had been much less severe. The pulse was weaker, and he had great sleeplessness and restlessness. The aconite was omitted; and twenty minims of chlorodyne were given in an ounce of water every four hours.

Eighth day. He continued easier, and slept well. The pulse was stronger. The spasms were not so frequent. He complained of much pain from flatulence. Twenty minims of tincture of sumbul were given with the chlorodyne. I may remark, that I have seen more benefit from sumbul in flatulence than from any other drug.

Ninth day. He took more beef-tea, etc., and was improving. The flatulence was diminished.

Tenth day. Immediately after being startled by a loud noise, he had a violent spasm, lasting some time. It recurred at intervals with great violence. He was ordered to have three minims of tincture of aconite and ten of chlorodyne in an ounce of water every four hours.

Eleventh day. He was much the same. The dose of tincture of aconite was increased to four minims.

Nothing of importance occurred until the seventeenth day. He continued the mixture, and the cramp decreased. The bowels having been confined several days, he had a turpentine enema, which greatly relieved him, and was repeated every other day. On the seventeenth day, some tingling came on, and continued until the nineteenth, though the aconite was reduced to a minim and a half every four hours. On that day the aconite was suspended. The next day there was more cramp. The aconite was resumed for a week longer, and he gradually recovered. In less than three months he was at work again. The muscles were some time in regaining their extensibility after the tetanic spasms had ceased.

Remarks.—The subjects for consideration are, the severity of the attack; the action of the aconite; the effect of the chlorodyne; the chances of spontaneous recovery; and the value of the case as a guide to future treatment.

It was unquestionably a most acute attack. A punctured wound, containing an irritating foreign body, prevents a man from working for ten days. He gets wet; and immediately tetanus sets in, and rapidly worsens. Every muscle of the body is racked with cramp; more than half his time he rests on his head and his heels; every step across the floor, every noise in the house agitates him with this torturing spasm; and from this agony he is free for only two or three minutes at a time. To those who saw him, it was truly a most severe case.

If I have related honestly and faithfully what I most certainly saw, there will be little reason for any detailed argument as to the action of the aconite. When the symptoms of aconitism came on, then, and not till then, did the symptoms begin to abate. Twice, when the aconite was suspended, once to try the effect, once because the tingling and giddiness were becoming extreme, did the spasms return, to abate again on the resumption of the drug. This contratetanic action of the aconite is rendered more probable by the large doses which were originally borne, a part of the remedy seeming to be neutralized, as it were, by the disease, and only the superfluity able to produce its poisonous effect. This view will explain why smaller doses produced greater effects towards the end of the case, there being then less disease to combat.

Perhaps some justification is necessary of the administration of the chlorodyne. Perhaps it may be objected, that I marred the decision of the result by its use. I do not think so. I have often seen the good effects of chlorodyne in producing quiet without depression. Here was a man under the influence of aconite—sleepless, intensely and emphatically restless. My object was to cure him, not to conduct an experiment only. I saw reason to believe that chlorodyne would relieve the disagreeable symptoms probably produced by the aconite, and it did so. But there was no repression of the spasms as a result of its use; for twice it was given alone, and each time the spasms returned, to be reduced again by the aconite. Useful, then, in relieving a disagreeable accident, it had no power to stand against the tetanus.

If I have succeeded in demonstrating the acute nature of the attack, the extremity of the symptoms, and the contraspasmodic action of the aconite, there can be little need to say anything of the chances of spontaneous recovery. He might have beaten the disease; but, from all we know of tetanus, we may be pretty sure that it would have gained the day.

What, then, is the value of the case? Does it contain hope for the future, or is its successful termination merely a fortunate accident? I cannot but think that it is full of hope, more especially when taken in connection with previously reported cases. Of course it is not conclusive; it cannot be. But it points very decidedly to a certain path, by following which, there is more hope of arriving at the wished for goal than by the old well trodden tracks. Aconite has never had that thorough testing that opium, for instance, has. So far, it seems to me most useful; further experience will determine its true value. But little persuasion should be required to induce a fair and extended trial of its powers, not by one or two, but by many; for, in such matters as this, 'in a multitude of counsellors there is safety.' Nor need we restrict our notice to aconite alone; it is only one of a class of medicines which has yet had little attention paid to it—all powerful, even violent, in their action, and many, I am convinced, containing 'a soul of good' within them, which as yet we have not 'observingly distilled out.'"

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21. *Chlorine Lotions in Variola.*—Several young persons having died asphyxiated at Würzburg, in consequence of the development of the pustules of variola or varioloid in the larynx, Dr. Eisenmann was induced to seek for a means which would limit the eruption to the skin, and prevent its propagation to the mucous membranes.

Most of the acute exanthemata take their origin in a mucous membrane, as scarlatina in that of the throat, and rubeola in that of the respiratory organs and eyes: and as long as it remains localized in the mucous membrane, and is moderate, the affection of the internal organs is not dangerous. But when the course of the subsequent eruption on the skin becomes impeded, or, that when it appears it is in such intensity or abundance, that the economy does not possess sufficient energy to meet the assault, the primary affection of the mucous membrane may then so increase as to give rise to dangerous lesions. The indications which we should have in view are to favour the eruption of the exanthem, and prevent the skin becoming excessively overchanged with it. The asphyxia above alluded to took place when the eruption had undergone a vivid development and had given rise to abundant pustules: and our object in such case should be to moderate the reflex action of the exanthem on the economy. The means of doing this the author believes will be found in applying over the whole surface three or four times a day weak, tepid, chlorined water, in imitation of a practice successfully pursued by M. Schönlein in scarlatina. He has now tried the plan during various epidemics, and has been able to confirm his own experience by that of others. The general conclusions are as follow:—

1. That chlorine lotions employed at the period of eruption present the following advantages. (1.) They favour the development of the eruption, and thus mitigate febrile action. (2.) The pustules are not too abundant, and do not become confluent. (3.) There is no subsidence or repercussion of the pustules observed, nor any variolous affection of the mucous membrane or of an internal organ. (4.) The patients suffer little during the height of the exanthem, preserve their appetite, and sleep well. (5.) The course of the exanthem is very rapid; and there is neither suppuration with its consecutive fever or tumefaction, salivation, etc. (6.) Scabs do not arise, only thin pellicles forming which soon fall, without leaving any mark or cicatrix. (7.) No consecutive affections are observed. 2. When resorted to only after the eruption has taken place, the lotions produce the following effects: (1.) They diminish or disperse the inflammatory condition, and accelerate the course of the exanthem. (2.) They prevent its repercussion and the propagation of the variolous affection to the mucous membranes and internal organs. (3.) In cases in which the mucous membranes have already become affected, the lotions exert a derivative action; and if together with them gargarisms, chlorine inhalations, and chlorined water internally are had recourse to, the intensity of these complications is much diminished, so that recovery takes place in cases in which life seemed to have been in great danger. (4.) Employed in good time, the lotions, even when the eruption has become developed, may yet prevent suppuration. If, however, this has taken place, it may still be moderated; and we find neither irritation of the skin, nor intoxication of the blood from absorption of pus, and consequently, no general reaction. (5.) Thin scabs only are formed, which soon fall off, only leaving temporary red marks. (6.) No consecutive diseases arise.

This means is beyond comparison superior to the variety of ectrotic applications having for objects the prevention of pitting, for these, when they can be borne, at most confer this local advantage without diminishing the severity of the disease. It is true that applications of corrosive sublimate or tincture of iodine exert a somewhat similar action on the variola to chlorine; but no one would risk making repeated and general applications of the former; while the sudden arrest of the morbid process over a large surface by means of iodine, which also interrupts the functional action of the integument, would often prove anything but a safe procedure.—*Med. Times and Gazette*, Feb. 11, 1860, from *Bull. de Thérap.*, t. lvi.

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22. *Sambucus Nigra in Dropsy.*—M. REVSSIE, a Belgian practitioner, states that he has long employed the juice of the root of the sambucus as an excellent purgative in dropsy. The bark of the fresh root must be detached by scraping, and the juice is extracted from the scrapings by pressure. The dose is a teaspoonful for an ordinary purgative; but as it does not cause colic or any other inconvenience, the quantity may, in the case of dropsy, be increased to a tablespoonful, which will often induce from twenty to thirty stools. It is a curious fact, that the process of boiling, as in the preparation of a syrup, converts this purgative into a diuretic, which may also be of great use in dropsy.—*Revue Méd.*, Nov.

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23. *Cylindrical Pencils of Tannin in certain affections of the Uterus.*—This form of application, pointed out by Dr. BECQUEREL, seems likely to be of service in the treatment of lesions affecting the cavities of the neck and body of the uterus. In particular, in the fungous conditions of their mucous membranes, with consecutive hemorrhages, the tannin pencils might be advantageously substituted for the intra-uterine injections, which are not always free from danger. Dr. Becquerel's formula is: ℞. Tannin, 4 parts; Gum tragacanth, 1 part; Bread-crumb, q. s. to give the proper consistence.

These pencils are 5 millimetres in diameter, and 3 centimetres long. To use them, the neck of the uterus is exposed by means of the speculum; a pencil of tannin is introduced by means of the forceps into the os tincæ, and is then pushed into the uterine cavity, and secured there by means of a plug of lint soaked with a concentrated solution of tannin. Once in position, the pencil softens and dissolves, and modifies the tissues with which it is in contact. At the end of twelve hours, the plug of lint is withdrawn by means of a thread attached to it. Every three or four days a new pencil is introduced in the same manner; and after a month of this treatment, the fungous state of the mucous membrane progressively disappears, and the hemorrhages are arrested.—*Edin. Med. Journ.*, Jan. 1860, from *Bull. Gén. de Thérap.*, Oct., 1859.

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24. *Influence of Sex on the Diseases of Children.* By R. KUTTNER.—The materials for this essay are derived from the consideration of 10,000 cases of disease, which have been observed at the Children's Hospital at Dresden. The following are the conclusions Dr. Küttner arrives at:—

1. Male infants are far more frequently, and especially during the first year, the subjects of disease of the digestive organs than female infants. It is a well-known fact that they are more difficult to bring up by hand, being much more liable to have the digestive apparatus disordered by defective or erroneous diet. In a relatively equal mortality of the two sexes, a much absolutely greater number of males die of this class of diseases. 2. So also diseases of the nervous system, particularly brain affections, and especially within the five first years of life, are almost twice as frequent in boys as in girls. 3. Finally, boys are far more disposed to hernia (of 116 cases, 75 occurred in them) than girls, and that with regard to both umbilical and inguinal hernia. 4. On the other hand, girls suffer more than boys from affections of the respiratory organs, especially catarrhal affections; for while the former presented 1128 cases, the latter presented but 988. But the difference becomes especially obvious during the fifth year; as the difference, insignificant (873 girls to 843 boys) prior to that age, then mounted up to 255 as compared to 145. Of 498 cases of pertussis, 281 occurred in girls and 217 in boys. Of 17 cases of croup, 9 occurred in boys, and 8 in girls. 5. In organic disease of the heart, a preponderance of females existed, viz., 13 out of 19 cases. 6. In acute blood-diseases, as exanthematous and typhus fevers, sex seems to exert no influence; but such influence is remarkable in the chronic blood-diseases and dyscrases, especially in anæmia, and scorbutus-like depravation of the blood. Of 144 cases of this class of disease, only 26 occurred in

males, and 118 in females. The difference becomes more marked with the advance of life; for while under 7 years of age, 17 boys and 30 girls belonged to this group, between the years of 8 and 13, there were but 8 boys to 88 girls. Scrofula and tubercle exhibited themselves in the proportion of 305 in girls to 269 in boys. Until the course of the second year, there was a preponderance in the males (86 boys to 69 girls); but after the fifth year there were, owing to the greater frequency of pulmonary phthisis among them, 121 girls to 72 boys. Rickets were observed in 577 boys and 610 girls, the disease being later developed and more enduring in girls than in boys. Congenital syphilis was observed in 36 boys and 49 girls. 7. Chronic diseases of the skin occurred in 903 of the 10,000 cases of disease; but no marked difference from sex was observed prior to the ninth year, after which period girls were found much oftener subject (88 to 31), and especially to diseases of the scalp, than boys. 8. Enlarged thyroid gland was met with in 15 male and 35 female children—25 of the latter having passed the ninth year.—*Med. Times and Gaz.*, Dec. 24, from *Journal für Kinderk.*, Bd. xxxii.

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25. *Angina Pharyngea Œdematosa in Children.*—Dr. Wertheimer desires to call attention to a variety of common angina, characterized by serous infiltration of the submucous tissue of the pharynx. The four cases which he has met with occurred in children of the respective ages of seven weeks, three months, eighteen weeks, and ten months. In all of these difficult and "rattling" respiration first calls attention to the malady, and, on examining the throat, large accumulations of loose, foamy mucus are observed attached to the isthmus and pharynx; and on the removal of this, all those parts possessed of a loose submucous tissue, are found to be excessively swollen—especially the uvula and tonsils. The mucous membrane is pale, smooth, and to the touch soft and sticky. The mucous membrane itself, and especially the glandular apparatus, plays the chief part in the affection. The dyspnœa, although considerable, does not become so urgent as in various other affections, such as œdema of the glottis, croup, etc. The respiration is very noisy, and accompanied by an expiratory snoring sound. The voice undergoes some change, and the cry of the child is less clear, but it is never hoarse as in affections of the larynx, or suffocative as in severe inflammatory affections of the lungs. Swallowing and sucking are difficult, but not painful; but the child chokes frequently, and at last refuses all nourishment. There is not usually any fever present. In two of the author's cases the course of the disease was acute (five and nine days), and in the other two, chronic; and they all recovered. The prognosis of the affection is, therefore, favourable; the prolongation of the disturbance of nutrition being the most unfavourable feature.

Œdematous angina is, in many respects, nearly related to catarrhal angina, but is distinguished by the almost suddenness with which exudation takes place, while, besides the tumefaction of the mucous membrane and the accompanying excessive secretion of mucus, there is also deposited a watery exudation, partly on the surface and partly within the cellular substance. From this result the looseness and fluidity of the secretion, and the peculiarly loose kind of intumescence of the structures implicated. This disease, like catarrhal angina, doubtless in some cases requires an active therapeutical agent; but in other cases assistance is called for. Emetics are then especially useful, the author preferring infusion of ipecacuanha with oxymel of squill; and sinapisms applied to the neck for a few minutes are sometimes desirable. When the affection assumes a chronic form, pencilling the parts with a solution of nitrate of silver is of use.—*Med. Times and Gaz.*, Dec. 24, from *Journal für Kinderk.*, Bd. xxxii.

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26. *Faradization of the Diaphragm in Asphyxia from Chloroform.* By Dr. Friedberg.—A boy, aged four years, inhaled chloroform from a sponge prior to undergoing an operation for the removal of a small tumour of the lower eyelid. At most ʒj was employed, and in less than two minutes alarming appearances were produced. The pulse had become very small, the respiration consisted only in a short, rattling inspiration, the face was livid, and the limbs were relaxed. Windows were opened, cold water was sprinkled on the face, ammonia

was applied to the nostrils, and a small sponge was carried down to the epiglottis, in order to remove any mucus and to endeavour to excite coughing—the thorax being at the same time rubbed, and sometimes dashed with cold water. These means might have been employed for two or three minutes, when a further change in the child's condition was observable. The pulse had now quite ceased, the countenance was that of a corpse, and the lower jaw had dropped. When the eyelids were separated to examine the pupils (which were dilated), they remained gaping. As no time was, evidently, to be lost, the author had recourse to artificial respiration. He did not endeavour to induce this, however, by the insufflation of air, regarding that as a very uncertain procedure. The methodical compression of the abdomen is a much better one, and was executed. While an assistant compressed the abdomen with both his hands beneath the navel, in order to prevent the viscera receding below, the author pressed the upper portion of the abdominal walls towards the diaphragm, removing the hands then immediately, in order to allow of the expansion of the lungs. This rhythmical procedure was kept up for about three minutes without any appreciable advantage. A complete relaxation of the diaphragm, in fact, existed, as there was neither resistance offered by it to the passage of the hand or any subsequent vaulting of the epigastrium. It was now resolved to Faradize the diaphragm, in order to induce its contraction. One of the conductors of Bois Reymond's induction apparatus was applied over the phrenic nerve (where the omohyoïdeus lies at the outer edge of the sterno-cleido mastoïdeus), and the other to the seventh intercostal space, pressing this latter deeply towards the diaphragm. The Faradization was performed sometimes on one side and sometimes on the other, the stream being interrupted ten times on the contraction of the diaphragm giving rise to vaulting of the epigastrium, a short sob occurring at the same time. The Faradization being now suspended, a slight spontaneous inspiration occurred, which was followed by a second and third, and a temporary reddening of the face, the pulse also becoming perceptible. Compression of the abdomen was again resorted to, the tension of the diaphragm not offering its proper resistance. The attempt to suspend the compression at the end of ten minutes of its employment was attended with an immediate enfeeblement of the respiration and pulse. It was therefore resumed for another ten minutes, the extremities being also rubbed, the face sprinkled with water, and ammonia applied to the nose. The recovery at last became so complete, that the operation was proceeded with, and the child did very well.—*Med. Times and Gaz.*, Feb. 25, from *Virchow's Archiv.*, Bd. xvi.

SURGICAL PATHOLOGY AND THERAPEUTICS, AND OPERATIVE SURGERY.

27. *Acupressure—A New Method of Arresting Surgical Hemorrhage.*—At the first winter meeting of the Royal Society of Edinburgh (Dec. 19, 1859), Prof. J. Y. SIMPSON made a lengthened communication on acupressure, as a new mode of arresting surgical hemorrhage. After describing the various methods of stanching hemorrhage in surgical wounds and operations, which the Greek, Roman, Arabic, and Mediæval surgeons employed, he gave a short history of the introduction of the ligature of arteries, and spoke of it as the hæmostatic means almost universally employed in chirurgical practice at the present day. But he thought that surgery must advance forward a step further than the ligature of arteries—particularly if surgeons expected, as seemed to be their unanimous desire, to close their operative wounds by primary adhesions of their sides, or by union by the first intention.

Dr. Simpson stated that he had tested the effects of acupressure as a means of effectually closing arteries and stanching hemorrhage first upon the lower animals, and lately in two or three operations on the human subject. The instruments which he proposed should be used for the purpose, were slender needles or pins of passive iron, headed with wax or glass, and in other respects also like the hare-lip needles commonly used by surgeons at the present day, but longer when circumstances require it. They might be coated with silver or zinc on the surface, if such protection were deemed requisite.

At first, Dr. Simpson believed that in using acupressure as a hæmostatic means, it would be necessary to compress the tube of the bleeding artery between two needles, one placed on either side of it. But in his later experiments upon the living as well as the dead body (as in amputations on the latter, and subsequently injecting tepid water through the arteries, in imitation of the flow of blood), he had found that the compression of one needle was usually perfectly sufficient to shut up an artery, and that even sometimes, when two or more bleeding points were near, they could be closed simultaneously by the action of one needle or pin. The whole process consists in passing the needle *twice* through the substance of the wound, so as to compress together and close, by the middle portion of the needle, the tube of the bleeding artery a line or two, or more, on the cardiac side of the bleeding point. The only part of the needle necessarily left exposed on the fresh surface of the wound is the small middle portion of it, which passes over and compresses the arterial tube; and the whole needle is withdrawn on the second or third day, or as soon as the artery is supposed to be adequately closed, thus leaving *nothing* whatever in the shape of a foreign body within the wound, or in the tissues composing its sides or flaps. To produce adequate closing pressure upon any arterial tube which it is desired to constrict, the needle must be passed over it so as to compress the tube with sufficient power and force against some resisting body. Such a resisting body will be most frequently found, 1st, in the cutaneous walls and component tissues of the wound; 2d, sometimes in a neighbouring bone, against which the artery may be pinned and compressed by the acupressure needle; and 3d, in a few rare cases it may possibly be found in practice, that a second needle may require to be introduced to serve as a point against which the required compression is to be made. Most commonly the first of these three plans seems perfectly sufficient, and that even in amputation of the thigh. In acting upon this mode, the surgeon may place the tip of the forefinger of his left hand upon the bleeding mouth of the artery which he intends to compress and close; holding the needle in his right hand, he passes it through the *cutaneous* surface of the flap, and pushes it inwards till its point project out to the extent of a few lines on the raw surface of the wound, a little to the right of, and anterior to his finger-tip; he then, by the actions of his right hand upon the head of the needle, turns and directs the needle, so that it makes a bridge as it were *across* the site of the tube of the bleeding artery immediately in front of the point of the finger, with which he is shutting up its orifice; he next, either with this same forefinger of the left hand, or with the side of the end of the needle itself, compresses the locality of the bleeding arterial orifice and tube, and then pushes on the needle with his right hand so as to make it *re-enter* the surface of the wound a little to the left side of the artery; and lastly, by pressing the needle further on in this direction, its point re-emerges through the *cutaneous* surface of the flap—and the site of the tube of the bleeding artery is in this way left pinned down in a compressed state by the arc or bridge of steel that is passed over it. The needle thus passes first from and through the skin of the flap *inwards* to the raw surface of the wound, and after bridging over the site of the artery, it passes secondly from the raw surface of the wound *outwards* again to and through the skin. Sometimes the needle will be best passed by the aid of the eye alone, and without guiding its course by the finger-tip applied to the bleeding orifice. It compresses not the arterial tube alone, but the structures also placed over and around the *site* of the tube. When the needle is completely adjusted, all of it that is seen on the surface of the raw wound, and that not necessarily so, is the small portion of it passing over the site of the artery, while externally, upon the cutaneous surface of the flap, we have remaining exposed more or less of its two extremities, namely, its point and its head. The rest of it is hidden in the structures of the flap or side of the wound. The degree of pressure required to close effectually the tube of an artery is certainly much less than medical practitioners generally imagine; but in the above proceeding the amount of pressure can be regulated and increased, when required, by the acuteness of the angle at which the needle is introduced and again passed out—the cutaneous and other structures of the flap serving as the resisting medium against which the needle compresses the arterial tube. But if it were ever, perchance, necessary to produce greater compression than can be thus accomplished by the needle alone, this increased pressure could be readily obtained by throwing around the two extremities of the needle exposed cutaneously a figure-of-eight ligature, as in hare-lip, with or without a small compress placed between the arc of the ligature and the skin. The process of the adjustment of the needle is difficult to describe shortly by words, but the whole of it is readily seen and imitated when repeated upon a piece of cloth or leather. We fasten the stalk of a flower in the lapelle of our coat by a pin passed exactly in this manner. To compress a bleeding artery against a bone is somewhat more complicated, but not much so. In accomplishing it, we have to introduce from the cutaneous surface a long needle through the flap of the wound obliquely to near the site of the artery, and then compressing, with the fingers of the other hand, or with the end of the needle, the part containing the artery against the bone, we make the needle, after passing over this compressed part, and after testing whether it has clothed the vessel or not, enter into the tissues beyond, and if necessary even emerge from, the cutaneous surface on the other side at an angle somewhat oblique to that at which it entered; thus taking advantage of the resiliency and resistance of the soft textures to make them push the needle with the necessary degree of compression against the artery and bone. Arteries in particular parts require special adjustments and modifications to compress them against the neighbouring bone, which only experience can point out. There is always sufficient soft tissue on either side of the artery for the needle to get a purchase upon, to compress the arterial tube against the bone or other resistant point. In two cases, Dr. S. had found that branch of the internal mammary artery which so frequently bleeds in the bottom of the wound after excision of the mamma, easily and perfectly closed by a needle passed through the flap to near the artery, then lifted over it and (after compressing it so as to stop the flow of blood) pushed onwards into the tissues beyond. Possibly, in some amputations, an acupressure needle or needles may yet be passed, immediately before the operation, half an inch or so above the proposed site of the amputation line, so as to shut the principal artery or arteries, and render the operation comparatively bloodless. If so, these needles would serve, at one and the same time, the present uses of both tourniquet and arterial ligatures. Perhaps this will be found, in some cases, a simple and effectual means of compressing and closing the artery leading to an aneurism—as the femoral artery, for example, in popliteal aneurism—changing the operation for that disease into a simple process of acupuncture instead of a process of delicate dissection and deligation, when in any case the milder methods of compression, manipulation, and continuous flexion of the limb fail. It has been hitherto a difficult problem to obstruct the vessels of the ovarian ligament in ovariotomy, without leaving a foreign body, whether clamp or ligature, upon the stalk of the tumour, to ulcerate and slough through it. If the stalk be transfixed and pinned in its whole breadth to the interior of the relaxed abdominal walls, by one or more acupressure needles passed through these abdominal walls from without, this difficulty may possibly be overcome,

That needles used for the purpose of acupressure, and passed freely through the walls and flaps of wounds will not be attended by any great degree of disturbance or irritation, is rendered in the highest degree probable by all that we know of the tolerance of living animal tissues to the contact of metallic bodies. Long ago John Hunter pointed out that small-shot, needles, pins, etc., when passed into and imbedded in the living body, seldom or never produced any inflammatory action, or none at least beyond the stage of adhesive inflammation, even when lodged for years. Some time ago, when the subject of acupuncture specially attracted the attention of medical men, Cloquet, Pelletan, Pouillet, and others, showed that the passage and retention of long acupuncture needles was attended with little or no irritation in the implicated living tissues. The reviewer of their works and experiments in the *Edinburgh Medical Journal* for 1827 observes, "It is a *remarkable* circumstance that the acupuncture needles never cause inflammation in their neighbourhood. If they are rudely handled or ruffled by the clothes of the patient, they may produce a little irritation; but if they are properly secured and protected, they may be left in the body for an *indefinite* length of time without causing any of the effects which usually arise on account of the presence of foreign bodies. In one of M. Cloquet's patients, they were left in the temples for eighteen days; and in cases in which needles have been swallowed, they have remained without causing inflammation for a much longer period. It appears probable, from the facts collected on the subject, that metallic bodies of every kind may remain imbedded in the animal tissues without being productive of injury." (p. 197.) All the late observations and experiments upon metallic sutures are confirmatory of the same great pathological law of the tolerance of living tissues for the contact of metallic bodies imbedded within their substance. In the operation for hare-lip, where the whole success or failure of the operation depends on the establishment or not of union by the first intention, surgeons use needles to keep the lips of the wound approximated, often compressing these needles strongly with their figure-of-eight ligatures, and find this measure the most successful means which they can adopt for accomplishing primary adhesion.

The acupressure of arteries, when compared with the ligature of them, appears, as a means of arresting hemorrhage, to present various important advantages: 1st. It will be found more easy, simple, and expeditious in its application than the ligature. 2d. The needles in acupressure can scarcely be considered as foreign bodies in the wound, and may always be entirely removed in two or three days, or as soon as the artery is considered closed; whilst the ligatures are true foreign bodies, and cannot be removed till they have ulcerated through the tied vessels. 3d. The ligature inevitably produces ulceration, suppuration, and gangrene at each arterial point at which it is applied; whilst the closure of arterial tubes by acupressure is not attended by any such severe consequences. 4th. The chances, therefore, of the union of wounds by the first intention should be greater under the arrestment of surgical hemorrhage by acupressure than the ligature. 5th. Pyæmia and surgical fever seem not unfrequently to be excited by the unhealthy suppuration, etc., in wounds which are liable to be set up by the presence and irritation of the ligatures. 6th. These dangerous and fatal complications are less likely to be excited by the employment of acupressure, seeing the presence of a metallic needle has not the tendency to create local suppurations and sloughs in the wound, such as occur at the seats of arterial ligatures. And 7th. Hence, under the use of acupressure, we are entitled to expect both, *first*, the surgical wounds will heal more kindly and close more speedily; and *secondly*, that surgical operations and injuries will be less frequently attended than at present by surgical fever and pyæmia.—*Edinburgh Medical Journal*, January, 1860.

In a subsequent paper (*Med. Times and Gaz.*, Feb. 11, 1860) Dr. Simpson gives some further interesting particulars relative to the practical application of this new mode of arresting hemorrhage.

"For the first application of acupressure to the arrestment of hemorrhage after amputation of the limbs, I am indebted," he states, "to one of the most accomplished and advanced surgeons in this country—my friend, Dr. Greig, of Dundee. Formerly as surgeon to our army in the East, and latterly as surgeon to the large hospital at Dundee, Dr. Greig has enjoyed great opportunities as an operator. His very interesting letters to me on the subject of acupressure indicate the change and struggle which every earnest and ingenuous mind has in setting aside old-established and cherished practices for the adoption of what is new. When I first took the liberty of directing his attention to the subject, as contained in an abstract of a paper on it in the January number of the *Edinburgh Medical Journal*, and asked him to be so good as to test the plan, he wrote me, January 8, 1860, that he could 'see no great difficulty in giving the thing a fair trial.' But he adds: 'Of its general adoption I have great doubts. We have been always taught to look upon the ligature as the only true means of arresting hemorrhage, and this feeling is somewhat difficult to get out of one's mind. Your illustration of fixing a flower in the lapel of the coat by means of a pin, explains the whole thing.'

"Case 1. Two days afterwards, January 10, Dr. Greig wrote me: 'I performed amputation at the forearm this afternoon in a case of laceration of the hand from the bursting of a gun, and I used the needles instead of ligatures for arresting hemorrhage. Both the radial and ulnar arteries bled freely, but were easily controlled by a needle placed on each, almost half an inch above the cut end. Both needles were, of course, in the palmar or anterior flap, and were applied *quite as easily as a ligature.*' These last words are underscored in Dr. Greig's letter, and show that thus the very first trial of acupressure proved as easy as deligation in the hands of a surgeon who for years had been in the constant practice and habit of applying ligature to arteries for the stanching of hemorrhage in his operations.

"Case 2. Three days afterwards, January 13th, Dr. Greig again wrote as follows: 'I have had another amputation at the middle of the forearm to-day, and used acupressure with ease and success. The process, so far as I have tried it, is *the simplest* one can imagine; and, unless I see some good reason for changing my mind, it must ultimately come into universal adoption. It is really surprising how very little pressure is required to stop bleeding from an artery. In fact, I had no idea of it till I tried acupressure.'

"On January 20th, Dr. Greig writes: 'Both the cases of amputation in which I used acupressure have done remarkably well. There has been less irritation and less suppuration, and the wounds are healing more kindly than had ligatures been employed. The first case did not close by the first intention, owing to part of the anterior flap having been lacerated by the explosion. The second has gone on as well as could be wished—no fever, no irritation—and the wound is healing by the first intention. What surprises me more than anything else, is the very small amount of pressure which is required to stop arterial hemorrhage. In passing the needle over an artery I do not think it will be found necessary to turn it sharply over the vessel, thereby binding it very tightly to the flap. Such a degree of pressure is by no means required. Less irritation is caused by passing the needle more lightly across the artery, and taking in more tissue along with it.'

"'It is a great comfort also,' Dr. Greig adds, 'to both patient and surgeon, that by acupressure the artery is closed in about forty-eight hours (a large artery may, of course, require a longer time), and all cause of irritation at once removed. In my first case I allowed the needles to remain in for three days; but in future I will consider two days long enough; and, for all I know, perhaps it is longer than is required.'

"'I have now the greatest faith in acupressure. I intend employing it in all kinds of cases that may come under my care, and I will have no fear whatever to use it in my first thigh amputation.'

"'In giving directions for securing the vessel, you advise the surgeon to place the forefinger over its bleeding mouth, etc. Now you will find it much better when you have a flap to keep the finger of the left hand on the skin side and use the thumb. You feel the vessel beating between the thumb and forefinger, and you can introduce the needle in the dark.'

"I heard again from Dr. Greig, on January 23d. 'The amputations (he states) are doing well, and both patients are walking about the wards. Yesterday (he continues), at a case of removal of the mamma, I again used the needles, and easily arrested the hemorrhage from two arterial branches which were spouting freely in the upper or axillary flap. A small branch of an intercostal was the only other bleeding vessel, and torsion was used for it. Nothing could have been easier or more beautiful than acupressure applied in this case, as the procedure was seen in its simplest form—more so than in a flap.' 'I see,' Dr. Greig adds, 'that in France M. Foucher has tried acupressure on the dead subject, and also on a dog. I wonder why he did not try it in an amputation. Nothing can be easier, and if a surgeon uses it once I am sure he will do so again.'

"Case 3. On January 30th, I had an opportunity, kindly afforded me by Mr. Edwards, lecturer on surgery here, of applying acupressure to stop the bleeding following an amputation of the foot through the first row of tarsal bones. The patient had been unable to work for one or two years, in consequence of an injury to the foot, which led to necrosis, and intractable caries of the anterior row of tarsal bones. He was a strumous subject, and his health was much damaged and broken down by the effects of the disease. Mr. Edwards performed the operation with great dexterity and rapidity, and the four or five vessels that bled were easily secured by as many acupressure needles. The section of the astragalus showed the existence of some disease in its cancellated tissue, which necessitated the removal with the gouge of a portion of its structure. The whole surface of the bone laid bare by the saw and gouge was vascular, and continued to ooze out blood as long as it was exposed. But as the patient was so weak and reduced, Mr. Edwards was anxious to close and stitch up the wound as soon as possible, and before the chloroform-sleep was over. The needles were all removed from the stump about fifty hours after the amputation. During the two subsequent days, there twice occurred a slight oozing of blood from the outer angle of the wound, but not more than enough to redden the moist dressings; and this altogether ceased on the removal of an old ash-coloured clot from the situation above mentioned. To-day, eight days from the date of the operation, the stump is healing kindly, and the patient feels well.

"Case 4. In the preceding three cases of amputation, acupressure was effected by passing the needles from the cutaneous surface of the flap, over the track of the bleeding vessel, and then causing their points to emerge through the skin at some distance. In other words, in all of these cases the cutaneous portion of the flap was used as the point of resistance against which the wounded artery was compressed by the bridge of the needle passing over it. In an instance of amputation of the leg immediately below the knee, performed on January 31st, in the hospital at Carlisle, by my esteemed friend, Mr. Page, I had an opportunity of applying acupressure in another of the modes suggested in my paper on the subject, viz., by compressing the principal bleeding arteries against a neighbouring bone as the resistant point. The cause leading to the amputation was very extensive and old-standing, irremediable disease of the tibia. It is, I believe, generally acknowledged amongst surgeons, that in consequence of the deep situation of the two tibial arteries, between the tibia and fibula, and in proximity to the interosseous ligament, seizure and deligation of these vessels in amputation immediately below the knee are, as a general rule, more difficult to accomplish than the ligature of the arteries cut across in any of the other amputations of the limbs. After Mr. Page had removed the diseased limb in the case in question, I stayed the hemorrhage from the two tibial arteries by compressing and closing them with two needles introduced through the cutaneous surface of the anterior flap, about half an inch above the level of the ends of the amputated bones. The points of these needles after producing the requisite degree of compression of the vessels against the bone, were pushed onwards into the substance of the stump behind. They were not, in this way, visible at any point on the raw surface of the stump. The first needle that I passed failed in producing an adequate degree of compression; but the two next succeeded. Half-way down on the inner surface of the large and fleshy posterior flap, an artery gave rise to some difficulty, for a reason which I had not previously prepared for. I passed a needle through the flap, a few lines on the upper or cardiac side of this bleeding orifice, so as to produce a sufficient degree of compression across the supposed track of the vessel leading to it, but without the effect of arresting the hemorrhage. On sponging the bleeding point, and examining it more carefully, we found that the jet from the artery was coming from below upwards, and not from above downwards. In consequence of this discovery I removed the acupressure needle, passed it through the flap nearer its apex, so as to produce compression two or three lines *below* instead of above the bleeding point—on the peripheral instead of the cardiac side of that point—and the hemorrhage was forthwith arrested. Mr. Page closed the wound most carefully with a large number of metallic sutures. He withdrew the acupressure needles seventy-one hours after their introduction. In a letter which I received from him four days after the operation, Mr. Page says: 'The man continues to eat and sleep well. Indeed,' he adds, 'I never had a patient who suffered less after amputation of the leg; and the condition both of the patient and of the stump is altogether most satisfactory.'

"In addition to the four preceding larger amputations, I have heard of some smaller amputations about the fingers and hands performed during the last month, in which acupressure was successfully used for arresting the subsequent hemorrhage. I saw a case of amputation of one of the fingers, in which my pupil, Mr. Pierce Simpson, operated. The arterial bleeding, as well as some general oozing from the surface of the flap, ceased immediately upon the introduction of an acupressure needle. The finger was irritated, and its vessels full and injected, in consequence of the effects of a severe injury received two weeks previously.

"In one of the extracts from Dr. Greig's letters, the simplicity and facility of the arrestment of arterial hemorrhage by acupressure, as compared with the ligature, is adverted to. Any surgeon accustomed to try both will speedily find acupressure to be far the easier and the more expeditious process of the two. Besides, in applying ligatures, the operator always requires the aid of an assistant; he can himself, however, apply acupressure needles without any such aid. While acupressure is thus far simpler in its application, it will also, I firmly believe, be found also far surer in its results as regards all the chances of obtaining complete reunion of the sides of the flaps by the first intention; and far safer too as far as respects the avoidance of the dire mischances of surgical fever from the absorption of morbid and septic matters formed by local suppurations and sloughs in the depths of the wound. Every ligature applied around the isolated extremity of a bleeding artery inevitably tears and mechanically lacerates the two interior coats of the artery, and afterwards inevitably produces ulceration, suppuration, and local gangrene at the tied point, before the thread can separate and become detached. No such severe and morbid local consequences necessarily result when a bleeding vessel is closed by the temporary contact of a needle."

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28. *Non-reducibility of Fractures of the Long Bones.*—M. GOSSELIN observes (*Gaz. Hebdom.*, Nos. 9 and 11, 1859) that so generally do the books lay down the law that all fractures are reducible, that a surgeon is at first surprised when he discovers the fallacy of the statement.

The following is a brief summary of the author's views on the subject:—

1. Even in cases in which there is no displacement, and there can be neither altered direction nor shortening, there may still be deformity, produced by a persistent increase of the size of the limb, at the level of, and to a certain distance above and below, the fracture. This deformity is of no great importance as long as the hypertrophied bone is not painful; but M. Gosselin has met with cases in which pain persisted for years, and kept the patients from their occupations for a far longer period than is usually the case after fracture of the leg. He cites two of these cases.

2. *Muscular atrophy* is another cause of consecutive deformity, and sometimes of irremediable diminution in the strength of the limb. Nothing is more common than muscular atrophy after fracture, both in relation to the fractured segment of the limb, and to the segments above and below this. In almost every case a notable diminution of the whole of the limb is to be observed, except in the instance of fracture of the clavicle, which does not seem usually to be followed by muscular atrophy of the limb. The *cause* of this atrophy has been attributed by some to the compression exerted by apparatus, and by others to the prolonged immovability of the limb. M. Gosselin is disposed to search for the explanation in the diverted nutrition of the parts consequent upon the reparative process of the fracture. At all events, he is of opinion that the atrophy does not depend upon causes from the operation of which a surgeon can shield his patients. Thus far, any means he has tried to remove this condition—as electricity, shampooing, &c.—have been of little avail; but this may arise from the patients not deeming the amount of inconvenience they suffer sufficient to induce them to undergo a prolonged treatment.

3. The displacements consequent on a fracture offer some varieties: 1. The displacement, according to the direction of the limb, can usually be very well

reduced, and it is in relation to it that the intervention of art is usually of utility. Still, the author refers to two cases of fracture of both bones of the leg, in which, in spite of every care, an angular displacement occurred; while certain cases of fracture of the fibula, whatever apparatus may be employed, and whatever care taken, are followed by a little abduction of the foot, and slight elevation of its external border. 2. Displacements according to circumference are rarely irreducible. Still, this is the case with a considerable number of fractures of the neck of the femur, with permanent penetration of the upper into the lower fragment, rotation outwards not being corrigible by other than imprudent attempts. M. Gosselin has likewise met with three cases of fracture of the leg in which irreducible displacement in the circumference has occurred. 3. Of the displacements which take place according to thickness, some are corrected easily, and are not reproduced; others are reproduced again, until prevented by diffused pressure; and others, again, are irreducible, do what we will. In several instances the author has been unable, in fracture of the leg, to place, even with the aid of chloroform, an upper or lower fragment which projected beyond the other. This he attributes to the indentation of the fragments, the teeth not fitting into each other during the efforts at reduction, except as a mere matter of chance. 4. In considering the displacement according to length, besides the part played by muscular action, account has not been taken of the considerable crushing of the bone which results from the reciprocal pressure of the fragments. Here there will be shortening of the bone, with impossibility of restoring it, the shortening even becoming augmented by subsequent absorption.

4. *Fractures near Joints.*—The frequency of fractures near joints, and the great liability to them of subjects aged more than fifty years, has been long known; but M. Vollemier, by introducing the term *penetration* in relation to fractures of the lower end of the radius, MM. Hervey de Chegoin and Robert, by demonstrating such penetration in fractures of the neck of the femur, and M. Trélat, by calling attention to intracondylian fractures of the lower end of the femur, have given quite a new impulse to the study of this description of fractures. But still there are wanting a generalization of these new facts and clinical deductions. In fact, these various fractures resemble each other in their mechanism and their lesions. 1. The fracture of the extremity of a long bone may take the transverse direction, and be unaccompanied by any crushing of the spongy tissue. This is the only fracture, indeed, recognized prior to Vollemier's investigations, but it is the most rare. 2. More frequently one of the fragments becomes so forced into the substance of the other that the penetration remains permanent, the spongy substance of the penetrated fragment being completely crushed. If the two fragments be separated, an accidental cavity will be seen to be hollowed out by the penetrating one, the latter usually presenting an irregular or toothed surface, which enters into such cavity. This variety is especially met with at the cervix femoris, and at the lower end of the radius. 3. In other cases one of the fragments presents the depression and crushing of the spongy tissue, but the other is not lodged in this depression, and is removed from it some millimetres in front or behind—penetration having in fact taken place at the time of the accident, but not being maintained. This disposition is especially met with in the radius, and is more rare than the preceding or subsequent variety. 4. One of the fragments, usually the shorter, may be comminutively fractured, the penetration being more forcible and deeper than in the preceding cases. This variety is observed in stelliform fracture of the radius, in fracture of the neck of the femur, when the great trochanter is fractured at the same time, and in fracture of the lower end of the femur, when there are at the same time intra- and supra-condylian fracture. To these cases a proper clinical import has not been given, and fractures are described just as formerly. But how are we to reduce fractures when their fragments are so solidly penetrated and ingrained as to be scarcely separable, even after death; or when one of the fragments has become shortened by crushing or by comminution? It is evident that surgery can do nothing here, and that the limb must remain enlarged and shortened, and that the action of the joint must be impaired.

5. *Therapeutical Conclusions.*—It is not the author's object to deter from attempts at reduction of fractures. These, he admits, must be made, and, in

case of failure, repeated. But when complete adaptation cannot be thus obtained, and the failure is explicable on one of the grounds mentioned, attempts should not be multiplied, or complicated and expensive apparatus resorted to. In the author's opinion, a careful and attentive surgeon may obtain with the most simple appliances all possible results. The consecutive deformities or imperfections may be inevitable; and it is an illusion to suppose that in all cases they may be completely prevented.—*Med.-Chir. Rev.*, Oct., 1859.

29. *Tracheotomy in Croup.*—The number of the *Edinburgh Medical Journal* for February last contains an interesting paper, by Mr. JAMES SPENCE, on this subject, in which he advocates the propriety of the operation in extreme cases, as not only warrantable, but as giving the patient the only chance of life.

He states that out of thirteen cases of croup in which he has operated in the last suffocative stage, six have been saved; and that in cases which subsequently proved fatal, great immediate relief from the agonies of suffocation was afforded. Moreover, he states "that out of the seven fatal cases, one was labouring under the sequelæ of scarlet fever of a severe character, and was completely relieved as regarded the breathing, but sank from persistent vomiting and emaciation; another, F. S., was an acute case of croup supervening on congestive scarlatina with cynanche maligna; in a third, the disease appeared in the progress of measles, also of a congestive character; and a fourth was a child only recently recovered from a severe attack of scarlatina. Now, whilst I would not like to exclude even such cases from the benefit of the temporary relief and the chance of life which tracheotomy affords, still it is evident that the chance in such cases is very much less than in uncomplicated croup, and that the result of such cases must tend unduly to reduce the average success of the operation."

"Tracheotomy," he adds, "cannot, indeed, be expected to be so successful in croup as when performed in œdema glottidis or ulceration of the larynx, or even as in acute laryngitis of adults, because in many cases of croup there is a tendency in the diseased action to spread downwards; on the other hand, what I have observed both as regards the invasion and progress of the disease as shown by the symptoms, and more especially from observation and experience derived from cases in which I have operated, I feel convinced that in many cases of croup the disease is more confined to the larynx than is generally supposed, and that, when it spreads, it does so from the larynx downwards, and does not attack the mucous membrane of the trachea simultaneously with the larynx, or, as some would have us believe, attack the trachea and bronchial mucous surface before affecting the larynx. Post-mortem examinations reveal to us the completed disease, not its progress—that must be derived from observation of phenomena during life; now, to say nothing of the ordinary progress of the symptoms, the immediate relief afforded by the operation in all cases, even in those which subsequently terminated fatally, shows conclusively that even in the fatal cases no disease of the lower part of the trachea could have existed at the time; otherwise the operation could not have afforded the relief it did. As to the presence of bronchitis being a contra-indication to the performance of the operation—a point which I was inclined to insist on in my former communication, though I would not go so far as some continental surgeons, who consider it absolutely favourable—I must modify my former opinion, inasmuch as in most of the successful cases it was present, and when the tube was properly managed the mucus was easily expectorated; and perhaps it may be considered favourable in one sense, as indicating a condition of the mucous membrane less predisposed to the formation of plastic exudations."

With regard to the question of operating at an early stage, Mr. S. says: "It has been plausibly urged, that the success of the operation would be greatly increased if it were performed before the symptoms became very urgent. So far as I can judge from the reports of the discussion in the Academy of Medicine, M. Trousseau's doctrine is to operate as early in the second stage of the disease as possible, when the presence of false membrane or exudation is ascertained from the suppressed and less frequent coughs, the fits of dyspnœa, with intervals of perfect quietude. Now, recoveries by the use of other remedies in this stage, though rare, are not so rare as to entitle us to urge an operation not free from danger in itself, unless we are prepared to show some good grounds for believing that by early operation we could greatly increase the chance of success: 1st. By early relief of the dyspnœa preventing the bad effects of the gradually increasing imperfect aeration of the blood, local pulmonary congestion, or emphysema; or, 2d. By preventing the extension of the membranous or plastic exudation downwards. The former of these indications, I believe, would be met by early operation; the second, and more formidable, I doubt, would not; for the cases I have operated on show that in certain cases the tendency to tracheal and bronchial exudation continues to spread downwards after the operation has afforded a period of relief, if it be not even increased by the presence of the tube. The late Mr. Liston used to object to tracheotomy in croup, on the ground that, if we operated early, there was no physical obstruction to the breathing to warrant it, and that if we delayed till the symptoms were urgent, the tracheal exudation rendered the operation useless. To neither of these propositions can I assent; but I think we are hardly warranted in operating till all remedies have been actively tried and no other chance remains; then there should be no delay. Here, as in many cases, the period of the disease, as regards time, is no criterion. If, in a case of croup, depletion, the warm bath, emetics, counter-irritation, calomel, and other remedies have been actively used without relief—if the hard, ringing cough has become suppressed, and the respiration is evidently imperfect, as shown by the contracted and depressed appearance of the cartilages of the ribs and occasional severe paroxysms of dyspnœa—for my own part, I would say that the operation is fully warranted. When the paroxysms become more and more frequent, and when the dyspnœa is rather persistent than paroxysmal, with turgid or pale lividity, the operation is the little sufferer's only chance for life."

Mr. S. believes that success depends a good deal on the manner in which tracheotomy is performed, and he gives the following directions:—

"There ought to be no attempt at rapidity or brilliancy in this operation; every step should be methodically gone about. First, as regards the position of the infant, the shoulders should be well raised, the head bent moderately backwards and supported by an assistant, who should pass one arm under the pillow behind the neck, so as it were to project or support it forwards, whilst with the other hand he keeps the head fixed with the chin in the middle line as a guide to the surgeon; the arms and legs may be controlled by a small sheet or large towel pinned round the body, the arms placed by the side; and when thus secured, one person can control the movements: care should be taken to see that the teeth are not firmly closed, but that the mouth be partially open and the nostrils kept free.

"The external incision should begin over the cricoid cartilage, and extend downwards exactly in the middle line for at least two inches. In general, two large veins, one on either side of the mesial line and close to it, are seen when the skin is divided; the fascial texture between these, corresponding to the intermuscular line, is readily divided by the point of the knife, and then these veins can be easily drawn aside. Sometimes one crosses the line to join the other, and is embarrassing, and may even require to be divided after being secured by ligatures. But the point most to be attended to is caution after separating the tracheal muscles. If the finger be placed deep in the wound at this stage, the trachea is felt pretty distinctly, and may seem so distinct as to warrant the surgeon entering the bistoury to divide the rings; but I hold this ought not to be done, because not only may there be the substance of the thymus gland flattened under the finger, but deeper, and passing from that gland to the thyroid, there exist numerous vessels which would bleed profusely. I have more than once pointed out this to the gentlemen assisting me at my operations. After separating the lobes of the thymus gland, even after these vessels and the thymus are pushed aside, I clear the rings of the trachea with the knife from loose cellular tissue, so that there may be no obstruction to the entrance of the silver tube when the opening is made in the trachea. On the tube being introduced, the head should be bent slightly forwards.

"The form of the tube itself is important: it ought to be of such a size as will admit air freely without over-distending the trachea, and always double; the inner tube fitting pretty close, but not secured to the outer, either by spring or other fastening, so that it may be easily removed for cleaning, or expelled by the efforts of coughing, if obstructed by mucus.

"In the after-treatment, when there is much bronchial effusion, the use of emetics is very beneficial; but under no circumstances would I now resort to antimony, for its effects are most dangerous, as diminishing the expulsive power, and depressing the patient, inducing sinking. I am glad that my opinion on this head is strengthened by the high authority and great experience of M. Trousseau. In all respects, I find ipecacuan answer better as an emetic, without depressing or leading to dysenteric purging, whilst it induces moderate diaphoresis and allays the febrile condition. M. Trousseau is very decidedly opposed to the use of blisters in these cases, on account of the sloughing which follows. But in this respect I cannot so fully concur; for though I would be far from advocating the use of the ordinary fly-blister, still I have found the application of the liquid blister highly useful in some cases of bronchial complication, and when carefully attended to, I have never seen any bad results.

"In regard to diet, in many cases it is necessary to give beef-tea and wine from the first; but in general I prefer for the first day or two a nutrient non-stimulating diet, such as milk and farinaceous food, and afterwards gradually giving animal food; but in respect to this we must be guided by the condition of each individual patient."

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30. *New method of treating Anthrax.*—Dr. T. R. BLACKLEY relates (*Dublin Medical Press*, Jan. 18, 1860) the following case of anthrax with a view of illustrating a new mode of practice which he recommends:—

About fourteen or fifteen years ago, taking a stroll not far from my residence in the country, I was requested by a poor woman to visit her husband, who lived in a cottage. He was a worn-out man, about 60 years of age, very thin, and with a countenance full of pain and anxiety. On examination, I found he had an enormous anthrax covering the inferior portion of the scapula, and extending from its anterior edge to the spinous process of the vertebræ. My first impression was that the disease was too far advanced for operation; my second, that it was the only course which held out a hope. I had no instruments, save lancets, in my pocket; but, inquiring if there was a razor in the house, was presented with one; with this I made a full and free crucial incision through the tumour. The edges of the wound bled freely for a little, but, that having subsided, I ordered a large poultice to be applied, and his strength to be kept up. On the following day I found the surrounding inflammation had diminished to a great extent, but as I looked on the emaciated frame, and a countenance almost Hippocratic, I felt the poor fellow, with every support, could not survive the separation of the slough.

As I thus reflected, I raised an angle of the skin, stretching the slough which firmly adhered to it, and an idea suggested itself on which I instantly acted. With a forceps and scissors I nipped away the entire slough from the sound parts, going as close as possible to the latter without wounding them, and drawing the edges of the wound into contact with adhesive plaster, I applied a bandage and waited the result. The slough when removed might have filled a wineglass. I thought it would have been larger, as previous to the operation the tumour in extent was the size of a plate, but as much of its fluid contents were removed with the poultice, the size of the dead cellular mass was proportionably diminished. In a couple of days I could scarcely credit the improvement which had taken place. The edges of the wound were united through two-thirds of their extent, and in the course of a week, with the assistance of porter, wine, and animal food, a central wound, not larger than a florin, and on the high road to cicatrization, remained. Had the slough been allowed to separate spontaneously, or even with the aid of turpentine and warm dressings, I question much if such a happy result would have taken place, as nature (at best with all the assistance I could have rendered her) would have required as many days to produce that condition of parts which the scissors effected in as many minutes, and at that critical stage of the disease when a day or two of suffering or relief might make all the difference between *cita mors aut victoria tata*.

31. *Treatment of Cancer by Caustic Potass and Chloride of Zinc.*—By MM. Salmon and Maunoury, surgeons to the Hôtel Dieu, at Chartres. After a communication on this matter extending over no fewer than seven numbers of the *Medical Gazette* of Paris, and in which numerous illustrative cases are referred to and fully detailed, these gentlemen come to the conclusion that this method of procedure, in so far at least as tumours of a cancerous nature are concerned, is attended with no greater success than that of treatment by the knife; and that the apparent success of those who have advanced such exaggerated statements as have been published regarding it, seems altogether due to the fact of *cicatrization* following the application of caustic being more rapid than that following the treatment by excision.

In concluding their remarks on the subject, they observe: The favourable reception which has for some years been extended to the operation by caustic may be regarded as a mere reaction against the use of the bistoury, omnipotent as it has always stood in the surgical hospitals of Paris. Such a reception attracted the attention of surgeons; but it was soon found that the real efficacy of the new style of treatment had been greatly exaggerated by its partisans, and that, notwithstanding its advantages in respect to a less amount of inflammatory reaction, the almost total absence of any risk of purulent infection, and the hemorrhage being next to none at all, the recurrence of the disease was more frequent after the employment of caustic than after extirpation by the knife.

No doubt the advantages here mentioned are not without their value. Diminished inflammatory and purulent fever, and the avoidance of hemorrhage, are certainly obtainable by the use of caustic; but for ourselves, who in a great number of cases have practised, and have seen practised, the operation by this means, we consider that in eight cases out of every ten the bistoury is preferable. Especially do we deny the efficacy of caustic in preventing a return of the disease; in seven cases of cancerous tumours in the axilla thus removed, both in the hospital of Chartres and in private practice, have we seen the reappearance of the malady, and a fatal result. All our cases have thus terminated fatally from reaccession of the disease, sometimes in the same situation, sometimes in another part of the body; and according to our recollection of numerous cases thus treated at Chartres by M. Girouard, he was no more successful than we have been.

We therefore completely coincide with the opinion of M. Bonnet, of Lyons, that the Canquoin caustic (*caustique Canquoin*) affords no greater security than does excision against the recurrence of cancer. As we have said, the fact which misleads the more credulous class of patients, and those medical men favourably disposed towards the use of caustic, is the rapidity of cicatrization, especially after the application of the chloride of zinc—the establishment of cicatrization, even over the cancerous tissue itself, being a result of such treatment.

Looking at all the facts relative to the extirpation of cancer by such means, we therefore, along with nearly all surgeons, are disposed to ask, whether, after this operation, one single case of an undoubted and permanent cure can be pointed out. Up to the present time, we deny that any such case has occurred; and we have learned, by experience, to mistrust those observations on cases of the kind which have been so prematurely published—neither the return of the disease nor the death of the patient having had time to take place.—*Edin. Med. Journ.*, Feb., 1860, from *Gazette Médicale*, Nov., 1859.

32. *Employment of Iodide of Potassium in the Treatment of Aneurisms.*—The *Gazette des Hôpitaux* has lately reported a clinical lecture of Professor Bouillaud upon aneurisms, and upon the results of the treatment of aneurismal tumours by the iodide of potassium. One of the patients was a man suffering under an aneurism of the brachio-cephalic trunk and aorta, and the other was a woman with an aneurism of the carotid artery. In the latter case, the iodide of potassium was administered for some days in the dose of a gramme, and afterwards in doses of two grammes for two months. At the end of this period, the tumour, which was at first as large as a pigeon's egg, had diminished so much that it might be considered to have disappeared completely. In the case of the man, the tumour, which was of considerable size, underwent displacement con-

temporaneously with a very well-marked diminution in volume, under the same treatment as that adopted for the woman. At the time of the report, however, the man was still under the treatment by iodide of potassium, and therefore no positive conclusions could be drawn. M. Bouillaud has treated other cases with iodide of potassium. In the case of a man with a large aneurismal tumour at the point of origin of the carotid and subclavian arteries, he found that the swelling was considerably diminished in a few weeks by the use of the iodide. In another patient, treated in the same manner for an aneurism of the carotid artery, he observed at the end of a few weeks that the tumour had almost entirely disappeared. These cases are considered to be sufficiently satisfactory to encourage practitioners in making further trials of the iodide of potassium in aneurismal tumours.—*B. and F. Med.-Chirurg. Rev.*, Jan. 1860.

33. *Treatment of Gonorrhœa and Gleet without Copaiba.*—Mr. Weeden Cooke read a paper on this subject before the Harveian Society, Jan. 19, 1860. After referring to Sir Astley Cooper's method of treating gonorrhœa, the author stated his belief that he was only giving utterance to a largely-acknowledged experience when he ventured to affirm that copaiba, in the treatment of gonorrhœa, was not only unnecessary, but that it was in a great many instances injurious, and that in all it was offensive to the last degree. During the last fifteen years at least six thousand cases of gonorrhœa had come under the author's care at the Royal Free Hospital, and he had availed himself of these large opportunities to test all the methods of treatment which had been suggested, in order to arrive at the safest, quickest, most efficacious, and least disagreeable mode of curing this disease. As introductory to the subject of treatment, Mr. Cooke discussed the subject of the cause of chordee, the reason for the scalding of the urine, the distinction between true and spurious gonorrhœa, and the time when infection may or may not be apprehended. The conclusions he arrived at were:—

1. That chordee, in ninety-nine cases out of a hundred, was due to spasm, and not to effusion of lymph; and that cubebs, acting as an antispasmodic, formed the most efficacious remedy for this symptom.

2. That the scalding was the result of the acid urine passing over the highly inflamed mucous surface of the urethra; and that this was to be remedied by the administration of the alkaline carbonates for the purpose of neutralizing the acidity of the urine, thus removing the principal cause of the continuance of the inflammation.

3. That, in all disputed cases, the true gonorrhœa may be known from the spurious by the presence of redness, heat, pain, and swelling, together with a purulent discharge, more or less green and offensive; whilst a discharge produced by connection with a person who has leucorrhœa, or has recently been confined, will not be accompanied with these inflammatory signs, and the discharge will be milky in consistence and colour, differing much from the thick purulent discharge of the veritable gonorrhœa.

4. The time when infection may or may not be apprehended was discussed, in its incubative stage and at its close. A case was given, showing that the disease may be caught from one person, and not communicated to another two nights after, because the purulent discharge had not commenced at the time of the second intercourse. Respecting infection at the close of the disease, the author had been enabled, from experience, to establish as a law for his own guidance, that gleet—*i. e.* a mucous discharge from the urethra, consequent on gonorrhœa—does not set up gonorrhœa in another person: but that, whilst any pus is to be found in the discharge, there is probability of infection.

Passing on to the subject of treatment, Mr. Cooke said that, upon inquiry at the London Custom House, he found that 118,396 pounds of copaiba were admitted into the port of London only during the first ten months of the year 1859. If this be administered at the rate of half a drachm three times a day, and supposing each patient takes it for three weeks, we have here copaiba enough to treat 473,584, or close upon half a million persons, and that in ten months only of the year. Considering how often it fails to cure the disease; how frequently it is rejected by, or at any rate disorders, the stomach; how tell-tale and disagreeable is its odour from the mouth and skin; how occasionally it produces a papular eruption all over the body; and that, in many instances, swelled testicle and stricture may be traced to its irritating influence, while gonorrhœa, rheumatism, and ophthalmia have been attributed to its administration: "considering all these objections," the author remarked, "is it not extraordinary that this disgusting medicine continues so long to hold its ground?" The abortive treatment by strong injections of nitrate of silver had proved a failure, because in some instances inflammation of the bladder had resulted. The treatment by diluents was slow in its action, and not readily employed by persons engaged in active business. That by diuretics was scarcely more successful; whilst the administration of saline aperients was generally attended with an aggravation of the ardor urinæ as well as chordee. The treatment which had been most successful in the author's experience was the chemical treatment by the alkaline carbonates, given with a view of neutralizing the acid in the urine. Thus one great source of irritation was removed from the inflamed urethra, and the subsidence of the inflammation, which nature would effect, was allowed to take place. As auxiliaries, especially when there is œdema of the prepuce, lead lotions, and elevation of the penis against the abdomen, were commended. The inflammation having subsided, and a muco-purulent discharge being left, the author had found, after giving trial to all the injections which have been at any time in vogue, that the chloride of zinc, introduced into this branch of practice by Mr. Lloyd, of St. Bartholomew's, was the most efficacious of any in curing the disease, and that with less discomfort and in a much shorter time than by any other means. Since employing this treatment he had had little, if any, orchitis amongst his patients. The strength of the injection he most commonly employed was two grains to the ounce, but in some instances one grain to the ounce was sufficient. Whilst advocating this treatment in persons of healthy constitution, it was necessary to completely change it in others. In the strumous, in the dyspeptic, in those of dissipated habits, and where the diseased person is an old offender, the alkaline carbonates are not called for, because either the urine is not acid, or the inflammation does not run high. In such cases the tincture of iron, or sulphuric acid and bark, or gentian, or calumba, may be advantageously employed from the commencement; and the chloride of zinc injection, in these cases, is also of the utmost value in rapidly overcoming the disease.

Respecting diet, the author considered that after the subsidence of the inflammatory symptoms scarcely any restriction need be enforced, and that beer or wine in moderate quantities may be advantageously used by those who are accustomed to these beverages. He had found long-established cases of gleet yield readily to the chloride of zinc injection, accompanied with tonic treatment and generous living.

In conclusion, he would rejoice if the treatment he had found so serviceable should be followed out by others, and thus assist in banishing altogether from surgical practice the use of so nauseous a drug as copaiba.—*Med. Times and Gaz.*, Feb. 4, 1860.

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34. *Treatment of Blennorrhagia by Vinum Colchici and Tincture of Opium.*—Dr. Eisenmann, of Würzburg, states that he once had occasion to prescribe a combination of vinum colchici and tincture of opium for an officer affected with rheumatic conjunctivitis, and a few days afterwards he was informed that the medicine had cured not only the ophthalmia, but also a blennorrhagia, of which no mention had been previously made. He was surprised at this result; but he resolved to profit by it, and to try the same treatment in other cases. He therefore prescribed the medicine for a girl affected with blennorrhagia, and was again surprised that a permanent cure was effected in a few days. Nothing was ordered externally, except frequent applications of tepid water. Subsequently, several cases of blennorrhagia in the male presented themselves, and were treated in the same manner. The dose employed was eighteen to twenty drops, three times a day, of a mixture consisting of twelve grammes of vinum colchici with two grammes of tincture of opium; milk was ordered as the principal article of food, and absolute rest was enjoined. All the cases of blennorrhagia thus treated were cured without exception in a few days, especially when the treatment could be adopted at the commencement of the affec-

tion, and none resisted longer than a week. The observations of Dr. Eisenmann have been confirmed by those of M. Collin, of Dresden, who treated ten cases of blennorrhagia with the greatest success by the mixture of vinum colchici and laudanum. The patients did not recover so rapidly as those treated by Dr. Eisenmann; but the latter physician attributes the difference to the probable inferiority of the drugs employed, and to the fact that the patients did not consult a medical man at a sufficiently early period.—*B. and F. Med.-Chirurg. Rev.*, Jan. 1860, from *Bull. Gén. de Thérapeutique*, May 15, 1859.

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35. *Falls from Great Heights followed by very Slight Injury.*—Mr. GEORGE MALLETT relates (*British Medical Journal*) the two following remarkable examples of this:—

CASE 1. Occurred about sixty years ago; and about twenty-five or twenty-six years since, it came to my knowledge under the following circumstances:—

At the period last named, I was requested to visit a poor man, who had been suffering severely for four days. I found him in great agony from retention of urine, none of which had passed from the bladder for four days. Many ineffectual attempts had been made for his relief by an irregular practitioner, but, unfortunately, he had been unable to introduce the catheter. The patient was about seventy years old, and presented the following symptoms: The skin was hot; the face red, and much emaciated; the pulse was rapid and very feeble; the mouth and tongue hot, parched, and covered by a thick coating of dark fur—in fact, presenting such an appearance as would be expected from so long a retention of urine. With great difficulty, a large catheter was introduced, and from five to six pints of urine were drawn off: the first was very ammoniacal, and the latter portion semipurulent and bloody. The catheter was introduced twice a day for three days, when the man died.

The day before his death he was very cheerful; and, in a jocular manner, said, "that in his younger days he had met with a bad fall, but he feared he had then suffered a worse one, as he had fallen into the hands of the doctor." He explained himself by stating, that when placing some of the masonry upon the highest part of the tower of a church, called St. George's, in this town, his foot slipped, and he was precipitated from the top to the bottom, the distance being at least one hundred and twenty feet; and that the fall was uninterrupted by any intervening scaffolding, so as to diminish the impetus of the descent. He added, that he was so little injured, that he was able to resume his occupation in a few days.

Upon making subsequent inquiry, I found his story to be strictly correct, with the addition, that his head fell upon some sheet lead, which was extended upon the ground; and that the force was so great that a deep impression was made upon the lead by the skull.

CASE 2. On December 8, 1859, I was called upon to visit another curious case, which recalled to my recollection the notes I had made of the preceding one.

A collier, aged about fifty, was descending a pit or coal-mine in a way frequently followed; but certainly such a mode of descent ought not to be permitted, as it is unquestionably dangerous. The descent is made by placing one foot in a ring or kind of stirrup, at the same time holding the rope with one or both hands. He had not descended more than four or five yards, when by some accident, which he cannot explain, his foot was knocked or slipped out of the ring, and his hold of the rope at the same time giving way, he fell at once to the bottom of the pit, a distance of at least one hundred and thirty-five feet. There was nothing to break or mitigate the force of the fall. He was found alive, but groaning, and constantly muttering, "O my children! O my children!" He was brought up; and I saw him about an hour after the accident. He appeared to be moribund. The pulse was not to be felt at the wrist, the extremities were cold, and respiration very difficult and painful. The slightest motion gave exquisite pain, and I could not attempt to ascertain what amount of injury the trunk had sustained. There was some contusion with extravasation of blood at the posterior part of the right thigh, a slight laceration of the scalp, and the knuckles of both hands were slightly excoriated and swollen, probably from his instinctively throwing out his arms in the vain hope of saving himself, and so striking the sides of the pit. These were the only injuries I could discover, as all the bones of the extremities were sound. He was placed in bed in the easiest position, which was lying on his back, but rather inclining to the right side. Bottles filled with hot water and hot bricks were applied to the extremities; and brandy and water was ordered to be given every half hour, until warmth was restored.

I then left him, and certainly did not expect to see him alive again; but, to my surprise, on the following morning, I found him much improved. His pulse, although still feeble, was regular and distinct; warmth had also returned to the extremities. The bladder had emptied itself naturally. The chief complaint now appeared to be on the right side; a careful examination of which showed that three or four of the lower ribs were fractured, which, upon the slightest movement, caused great suffering, and rendered the breathing so difficult, as to threaten instant suffocation. The chest was bound up; and beef-tea, etc., were ordered.

On the third day the bowels were moved, the pain diminished, and the respiration easier. From this time the improvement was gradual, and without interruption; so that, on December 25th, he was so much improved as to be able to walk down stairs, and the only remaining complaint was a slight pain at the side when drawing a deep inspiration.

I have said little or nothing respecting the treatment, simply because little or no treatment was required. It was one of those numerous cases of which it has been justly said, "Nature cures, and man has the credit."

Undoubtedly, it is difficult to conceive, under any circumstances, how the human frame could without greater injury have sustained such shocks as must have been inflicted upon them in these cases. It would have been natural to suppose that the momentum or force acquired by the bodies falling through so great a space, would have been sufficient to dash them into mangled and disorganized masses, more especially as they could not have fallen upon substances more unfavourable—lead in the one case and the solid rock in the other.

OPHTHALMOLOGY.

36. *Antiphlogistic Powers of Morphia.*—Dr. Z. Laurence relates (*Med. Times and Gaz.*, Dec. 31, 1859), several cases of sclerotitis and of iritis, treated by morphia.

These cases he considers "establish an important practical fact, viz., that morphia is *per se* a powerful antiphlogistic,[1] capable of curing these acute inflammations of the eye, in which up to the present time bloodletting, blistering, and mercurialization have been considered necessary. As regards loss of blood, all will be agreed on the propriety of dispensing with it, where it can be done so with safety. Again, how constant an occurrence is it to see paroxysms of acute inflammations for a time apparently relieved by bloodletting, till the subsequent vascular reaction sets in, but to recur again and again, and require as many repetitions of this same objectionable remedy. I would further ask surgeons and physicians, What evidence have they that in the combination of mercury and opium given with a view of 'putting the patient under the influence of mercury,' as it is termed, it is not really the *opium* which does the good, and that the mercury and its action on the mouth may not be, to say the least, useless![2] And I would finally ask the physicians of this country to test the powers of morphia in the treatment of the acute inflammations of the internal organs of the body."

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[1] In all the cases mentioned, the patients had been using warm fomentations to the eyes before applying at the hospital.

[2] Again, mercury is presumed to have an "absorbing power" over plastic effusions, such as occur in acute iritis: here, too, it is a fair question whether the absorption of the inflammatory exudations is not rather a natural process, supervening on the cessation of the inflammation (such as we daily see in the absorption of divided cataracts, after the operation by solution, as soon as the inflammatory consequences of the operation have passed off), than any, if I may be allowed the expression, "mercurial" process?

"If we seek for an explanation," says Mr. L., "of the above very remarkable action of morphia, in reducing abnormal fulness of the vessels of the sclerotic, we may find it in the relations of pain to vascular congestion. Pain has generally been regarded rather as the effect, than as the cause of the repletion of blood-vessels; but it is quite an open question, whether or not in certain classes of cases the order of things may not be inverted? Such may be the case in the inflammations of the sclerotic, we have just been discussing. That, on the other hand, vascular congestion may react as a cause of pain, is not improbable. The theory I would submit is, that the action of morphia in these cases depends on its known power of reducing nervous irritability, which may be viewed as the primary cause of the inflammation. In these deep-seated inflammations of the eye this view is very much borne out by the seat of the pain; this will be found to follow strictly the branches of the fifth nerve; indeed, the precision with which the patients themselves localize the pain is very remarkable, whilst we have further evidence of the nervous nature of these cases in the intense watering of the eye (dependent on irritation of the lachrymal branch of the fifth nerve). In this way I conceive the irritation is propagated to the vessels through the intervention of the connections existing between the fifth and sympathetic nerves."

[We cannot doubt the beneficial influence of morphia in some cases of inflammation of the eye, especially those attended with severe pain, but we must be cautious not to generalize too far, as Mr. L. seems to us to have done. One of the cases related by Mr. L. illustrates this, for in it (a case of sclerotitis), morphia entirely failed to afford relief, and the patient was subsequently cured by leeches, blisters, and mercurialization.]

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37. *Conical Cornea and its Treatment by Operation.*—Mr. BOWMAN, in an interesting article in our valuable contemporary, the *Ophthalmic Hospital Reports* (October, 1859), gives an account of the morbid anatomy of this affection, its pathology, &c., with a description of a new method he has adopted for improving vision in such cases. So unsuccessful and hazardous have been the operative proceedings hitherto employed, that they have latterly been seldom resorted to.

"It has long been known," says Mr. Bowman, "that an eye thus affected often sees much better when either a small hole or a narrow slit in an opaque diaphragm is placed immediately before the eye. This is owing to the interception of all but a narrow pencil or plane of rays, which passing either laterally or centrally, form a more or less true image, unconfused by admixture with others less accurately converged, entering through neighbouring and more distorted portions of the corneal surface.

"Such a contrivance has to be applied with a certain amount of skill, and to be moved as the eye itself moves, and it is seldom useful except for very near vision, because the area of the field is so contracted. To be useful, the aperture must be brought very near the cornea, and on the whole, though often far better than nothing, it is ill-adapted to poor and uninstructed persons. The idea on which I proceeded was so to operate on the iris as to give the pupil a slit-like shape, and to fasten it to the cornea in such a position as to conduce to the formation of the most correct image compatible with the altered curve of the cornea in each particular case.

"It seemed likely that if the slit-like aperture could be placed within the eye, immediately behind the cornea, it would be more useful than the artificial perforated diaphragm placed outside. Without confining myself, however, to this idea, I have been endeavouring for the last two years to discover experimentally what modification of the pupil artificially produced was most effectual in improving vision. In no case have I had reason to regret having operated: no case has been made worse; all, with one exception, have been improved and none has caused anxiety by inflammatory threatenings consequent on the operation.

"The first case I shall relate is that of Sarah Collins, æt. 26, who for eight years had been delicate, and for six years had suffered from conical cornea, both being equally prominent and both transparent. With this exception, the eyes were quite natural, she could with an effort read the smallest type for a few moments if held very close, but had been compelled to abandon her employment on account of the impossibility of seeing the objects around her.

"On April 30, 1858, I operated on each eye in a different manner, but with the same object, viz., that of drawing the pupil outwards to a fixed point at the margin of the cornea, as the first step towards forming it into an horizontal slit. On the left eye I excised a minute marginal portion of the cornea by the help of a broad needle (*corneëctomy*—the operation of Guepin modified) a small portion of iris was immediately protruded and the pupil became transversely balloon-shaped, the margin of the pupil not being involved in the hernia. On the right eye I performed the operation of *tying the iris*, then just devised by my friend Mr. Critchett, to meet the want we had long felt of a sure method of fixing the iris to the point of puncture in cases of artificial pupil. (See *Ophthalmic Hospital Reports*, vol. i. p. 225, October, 1858.) In both eyes the canula forceps was used to seize and draw out the iris to the degree desired, the point seized being about one-third from the pupillary margin, so as to leave that margin still free within the aqueous chamber. The object in each eye was attained, but with so much less irritation from the iriddesis that in all subsequent operations I had recourse to this method, which I regard as one of the most useful improvements made of late years in the operative surgery of the eye, giving as it does precision and certainty, with perfect security under all ordinary circumstances, to the operation for artificial pupil, in the very numerous cases to which it is applicable. The sight being now much improved, but most so in the right, I operated inwards, or at an exactly opposite point, in both eyes on the 21st of May, the immediate result being a transversely oval pupil in each. In the right eye the margin of the pupil was entirely free; in the left, the margin was adherent to the site of the corneal wound. Hardly any irritation ensued. At the end of two days the ligatures had dropped off; the pupils acted promptly, the left being more slit-like than the right. In both eyes vision was immediately much improved and a gradual further amendment has since gone on, apparently owing to a certain receding of the corneal bulge.

"This girl has become able to resume her occupation of a housemaid, and is able even without concave glasses to see the objects in a room with tolerable accuracy; with a glass she can see distant objects still better.

"I have operated since on six other patients, on five of them in both eyes. I have operated so as to make the pupil vertical rather than horizontal in all these cases, and in several have experimentally modified the operation in regard to the point of the iris seized by the canula forceps, and so as to test the value of that instrument, compared with the short blunt hook for seizing the pupillary edge. This last I now prefer, as being simpler and less apt to injure the iris, while it affords greater precision in fixing the pupillary edge to the wound. I find, too, no disadvantage in engaging the pupillary edge in the wound, the pupil acting as well afterwards as when the natural pupil is still entirely within the chamber. I have tried to perform iriddesis in the opposite directions on the same eye on the same occasion, but found that the point first tied was apt to be drawn unduly into the chamber while the opposite point was being drawn out, so that I think it better to do the second iriddesis on the same eye a week after the first.

"In one of the earlier operations with the canula forceps there was a little bleeding from the stretched iris into the chamber, sufficient to disguise the later steps of the operation, but with the short hook this has never occurred. These operations from their extreme delicacy should be done under chloroform, the influence of which should be sufficiently complete to place the organ in complete repose; one minute is sufficient for each eye when dexterously managed. If sickness ensue it does no harm to the eye. No iritis suffusing the pupil has followed in any case, but of course the usual care has been taken to keep the eye cool and quiet for a few days after the operation. If the thread remains on after three or four days, it may be pulled away with forceps. It is of great importance to the perfection of the operation that the puncturing instrument and the blunt hook should be of equal size, so that a sufficient opening, but not more than sufficient, is made for the free passage of the hook; otherwise, either the hook does not enter easily, or, on the other hand, the knot is prone to slip back into the puncture, or even into the aqueous chamber. The recurved part of the hook should be long enough to hold the pupillary margin, but so short as to admit of the ligature being tightened the moment this margin is outside the puncture. I always leave one end of the silk nearly an eighth of an inch long, so that it may be readily laid hold of afterwards, should it chance to have fallen at all inwards, or be concealed by a coating of lymph. These may seem trifling points, but in my opinion have their importance, and are not unworthy the attention of any one performing this operation for the first time—they pertain to the excessive delicacy of the structures, and of the whole proceeding.

"It has been a matter of great interest with me to ascertain, as far as the limited number of cases presenting themselves enabled me, how far the second iriddesis was useful—in other words, whether an elliptical or slit-like pupil gave better sight than one of a balloon-shape; and again, whether the vertical direction was better than the horizontal, or the reverse; also whether other modifications in the direction of the altered pupil were desirable.

"Of course, this is a subject which must be worked out in detail by surgeons, and the following remarks are but hints for future experimental inquiries.

"The slit-like figure of the pupil suggested itself to me as the most feasible method of much limiting the size of the pupil while changing its situation. If the thing be well considered, it will be found difficult to conceive any plan of rendering the pupil *very small* by operation; it is much more easy to *enlarge* it. While the pupillary margin is free any displacement of the iris is most likely to enlarge the pupil, for I despaired of being able to seize the iris at one side of the pupil and draw and fix it over towards the other side. Any excision of the iris must, of course, enlarge the pupil, and so must any marginal iriddesis; but by a double iriddesis in opposite directions the central region becomes slit-like. By making this slit *horizontal* the light is admitted from each side, as well as through the centre, and the range of the field would probably be expanded, while the precision of the image would be impaired by the inequality of refraction through the central and marginal regions respectively. The appearance of the horizontal pupil was besides not agreeable. The *vertical* position of the slit offered the prospect of its virtual reduction in size, by the overlapping of its angles by the lids in ordinary vision; and I hoped that the patient would learn to use the lids for this purpose, so as to clarify the image. I cannot say that this expectation has been borne out in any marked degree, but nevertheless the vertical slit is much more sightly than the horizontal, and certainly equally good for vision, so that at present I prefer it.

"The improvement of vision from a first iriddesis downwards has been in almost every case decided, the patients being delighted with the result. In some the second iriddesis upwards has not seemed further to increase the precision of view, in others it has certainly done so, and in the present state of the inquiry I am disposed to continue to practise it in cases of considerable conicity. The improvement, however, consequent on the second operation, is never so marked as that which follows the first, and it can only operate by narrowing that part of the pupil which lies behind the bulge. Its more or less influence in different cases may perhaps depend on varieties in the curvature of the apex of the cone.

"The *influence of these operations in lessening the corneal bulge* has been very remarkable. It is not easy to give in any case the exact amount of this result, but that the bulge diminishes speedily, and continues to do so for a considerable time subsequent to the operation, admits of no doubt, and I attribute it to the moderation of the ocular tension. Further experience will show whether I am right, but at present I am for operating quite early in slight cases in a downward direction only, if only to arrest the progress of the conicity; and certainly to obtain this result in almost any degree will make it worth while to perform so safe an operation in a disease otherwise so intractable, and, in its advance, so destructive of all useful sight."

In addition to the six cases operated on by Mr. B., four others have been operated on by his colleagues, Messrs. Critchett and Poland, with satisfactory results as to the influence of this method. Two of these, however, were complicated with extraction of the lens. Mr. Lawson has also had a satisfactory case.

38. *Voluntary Power of using Horner's Muscle* (*Tensor Tarsi*).—Dr. Jago, of Plymouth, in a letter to Dr. Streatfeild, writes:—

"In compliance with your wish, I send you some remarks on the power I have over the *tensor tarsi* muscle which you remember having observed in me many years ago.

"I cannot find that the action or the uses of this muscle have been *demonstrated* by any author within my reach, nor have I ever known any one, besides myself, who has *voluntary* control over it.

"In me the *carunculæ* and the *plicæ semilunares* are of normal size, and well defined. The *rimæ palpebrarum* are rather large. From my earliest years I have been able to move the eyelids in an unusual manner, and quite different from the ordinary way by the orbicularis.

"Ellis says, 'the *tensor tarsi* muscle, small and oftentimes very indistinct, is situated behind the tendon of the *orbicularis*. It arises from the vertical crest which divides the orbital surface of the *os unguis* into two portions that run outwards along the lachrymal canals, and are inserted, one for each eyelid, into the cartilaginous processes in which the *puncta lachrymalia* are situated, and also into the tarsal cartilage of the same lid. The muscle lies behind the tendon of the *orbicularis*, and against the lachrymal *sac*.'

"It is stated by Cruveilhier that 'this small muscle arises from the vertical ridge of the *os unguis* which forms the posterior border of the lachrymal groove; from this point it passes transversely outwards along the posterior tendon of the *orbicularis palpebrarum*, and divides into two tongues, a superior and an inferior, which correspond to the lachrymal canals, and terminate at the respective lachrymal *puncta*.' He regards these fibres as a 'dependence' of the *orbicularis palpebrarum*.

"In me the voluntary contraction of this muscle takes place instantly when willed, and with considerable force, which is *more in the under than in the upper lid*. The contraction can be sustained for some time, easily for half a minute, after which time the *tensor* begins to be tired. This can be done in either eye alternately and singly, or in both together.

"When the *tensor* contracts, the inner angle of the inferior tarsal cartilage is drawn inwards towards the nose, and *upwards* as far as the *upper border* of the *caruncula*, so as to cover it: at the same time also the corresponding angle of the upper tarsal cartilage is pulled inwards and *downwards*, as far as the upper border of the *caruncula;* where both inner angles of the tarsal cartilages meet: and together are still more drawn *inwards* towards the vertical ridge of the *os unguis*. The inner commissure becomes a mere groove of a semilunar form, its concavity looking downwards and outwards. The skin at the inner angle of the eye becomes puckered, the *caruncula* and *plica semilunaris* cannot be seen, being covered and pressed more deeply into the orbit by the inner angle of the *lower* tarsal cartilage.

"During the action of the *tensor*, the eyeball remains passive or not, as I will it; and there is *no movement* of the *orbicularis*, nor any corrugation of the eyebrow.

"In all degrees of contraction of the *tensor tarsi* the *puncta lachrymalia* continually keep their usual direction towards the eyeball, and neither they nor the eyelids are everted or inverted.

"When the eyes are shut the *tensor* simply draws both eyelids transversely nearer to the nose, and the inner tarsal angles are pulled more into the orbit towards the vertical ridge of the *os unguis*.

"When the *tensor* is not in action, the lids bear with the usual force against the front of the eyeball.

"The outer commissure of the eye keeps its position, and is not affected by the action of the *tensor tarsi*.

"What is the use of this little muscle? Does it, by intermittent contraction on the lachrymal canals, assist in *pumping* away the tears? When it is considered that the *puncta* are of less diameter than the canals, that the muscle is inserted close to each *punctum*, and following the direction of each, is attached to the vertical ridge of the *os unguis*, that each lachrymal canal has a separate orifice *in the sac*, that the muscular power of the *inferior* division of the *tensor* *tarsi*, to which the most tears must flow, is, in me, at least four times more than that of the upper, that just below the opening of the inferior lachrymal canal into the sac, sometimes a circular, and often a semicircular *valve* is found; I think that all this mechanism points to a very important, though not perhaps the sole, use of Horner's muscle, and that it is not by capillary attraction alone the tears find their way through the lachrymal canals.

"The name, *tensor tarsi*, does very aptly indicate an important use; and it is not at all improbable, although few may have voluntary power over this muscle, that in every person it always acts as a *regulator*, with the orbicularis, in keeping up that amount of tension necessary for a perfect and protecting apposition of the lids to the eyeball under every situation of the eye.

"I have quoted Cruveilhier's observation that the muscle is a 'dependence' of the orbicularis; this may appear so on dissection, but in my own case it seems to be ascertained that the *tensor tarsi* is as much an independent muscle as any other."[1]—*Ophthalmic Hospital Reports*, October, 1859.

MIDWIFERY.

39. *Difficulty of Delivery in Rupture of the Uterus.*—Dr. J. H. AVELING calls attention to cases of rupture of the body or fundus of the uterus, in which one or both of the child's legs have escaped into the abdominal cavity.

"Dr. Dewees," he remarks, "in the treatment of these cases, where the child is only partially protruded into the abdominal cavity, says that 'pains may effect the delivery of the child, or it may be readily extracted by art.' But how different is the pleasant reading of a fluently-written work on Midwifery, to the painful practice of it with a suffering patient before you, and alarmed faces around! That the child may be readily extracted when the rent extends to the vagina, I do not deny; but, if the rupture be situated in the fundus or body of the uterus, great difficulty may be expected frequently to be met with.

"In support of this statement, I shall quote two cases, the first of which Mr. James Baron, of Gosforth, has the credit of having given to the profession in the *Medical Times and Gazette*, December 3, 1853.

"*Case* 1.—The woman, aged 38, was in her twelfth labour, which proving to be lingering, two doses of ergot were given. About an hour and a half after, the head was found bearing well down towards the perineum, when the patient became violently excited, and cried out that 'the pain was dreadful, of an intense burning character, which never left her, and which she could not live under.' After an ineffectual attempt to restrain her, she got out of bed, but scarcely had she done so when she was observed to become deathly pale, and she said, quite calmly, 'I feel very waffish.' Rupture of the uterus was at once suspected, and after some delay, caused by having to send for his instruments, Mr. Baron proceeded to deliver. After a little difficulty in locking his forceps, Mr. Baron began to extract. But I will here use his own words: 'Immediately on doing so (extracting), she commenced to complain of the "burning" pain, and, as I proceeded, she became excited in the same violent way as before; but having more help, we restrained her. In about half an hour, after much labour, I succeeded in delivering the head, but, as I did so, she expired. The shoulders defied all my efforts to extricate them, and I was obliged to be content, and allow the child to remain. It showed no symptoms of life.'

"At the post-mortem examination, immediately on cutting into the abdomen, the breech and legs of the child, together with the placenta, were found lying in the peritoneal cavity. The contracted uterus was found low down in the left iliac region, hid from sight by the intestines. The rent was extensive, and situated in the anterior wall; but whether it was continued through the os tincæ could not be ascertained, as the child occupied the entire pelvis, and could not be moved.

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[1] This gentleman has similar voluntary power over the *attollens* and *attrahens aurem*.—ED.

"*Case* 2.—I received a note in the middle of the night from a practitioner in the country, saying that he had met with a difficulty, and would be glad if I would come directly. On arriving, I found two medical men in the house, and the patient, a fine, dark, handsome woman, of about 30 years of age, in a very weak state, with an anxious, dusky countenance, and suffering from violent and rapid pains. The arm had presented, and my medical friend had succeeded in bringing down the left foot, with the intention of turning. No amount of traction, however, on this foot produced any other effect than that of causing the patient intense agony and violent contractions of the uterus. Hoping to relax the uterus, I put the patient under chloroform, but with no effect, for the uterus continued as firmly contracted as ever, and the fœtus remained as immovable. A dose of opium was given, hoping that the spasmodic character of the pains would abate, but the patient sank rapidly, and died undelivered.

"On examining the body the next day, the whole of the right lower extremity of the child was found protruding through a rent in the uterus into the abdominal cavity. The rupture had taken place in the anterior and upper part of the body of the uterus, and was not large enough to allow the child to be drawn through it without being enlarged by the knife. Very little hemorrhage had taken place. The child was a fine healthy male.

"The great question which arises after reading these two cases must be with every one, What was the *cause* of the difficulty in delivering? And the answer to this question, as far as my reading goes, is not to be found in any work on midwifery. If the reader will recall to his mind the position of the fœtus in the uterus, and more especially the manner in which its thighs are firmly flexed upon the abdomen, he will have no difficulty in understanding how one or both of these flexed thighs may, when protruded through the walls of the uterus, become hooked over the edge of the ruptured opening, and thus defy any effort to extract the child short of that which would be sufficient to bring the uterus with it.

"In Mr. Baron's case, the same 'burning' pain and violent excitement was produced when he began to extract with the forceps, as had occurred at the time of the rupture. These were doubtless caused by the strain upon the edges of the rent caused by the body of the child, and the two thighs hooked over, being pulled downwards. At the post-mortem the uterus was found low down in the iliac region. This is exactly the position, supposing the child to have presented naturally, in which one would have expected to have found it; for the legs of the child would naturally incline to the right, and being protruded from the uterus, would occupy the right side of the abdominal space. Mr. Baron attributed the difficulty of delivery to the shoulders of the child; but, at all events, in Case 2, such could not have been the cause.

"*Treatment.*—Baudelocque, in the treatment of these cases, says: 'When the head presents after the rupture of the uterus, even if it should not be engaged in the pelvis, provided the deformity of the latter does not offer any great obstacles to it, we ought to terminate the delivery with the forceps—whatever part may have penetrated into the abdomen. We ought not to extract the child by the feet, but when they are found in the neighbourhood of the orifice of the uterus; or when the child is still entirely in that viscus.'

"Dr. Collins says: 'When the head presents and does not recede, it is rarely that lessening it and delivering with the crotchet will not be found the most eligible mode of proceeding. Efforts have been frequently made to deliver with the forceps in such cases, but this instrument is seldom applicable, as the introduction of the blades generally forces the head out of our reach; besides, but little would be thus gained, for the child dies shortly after the rupture takes place.'

"Dr. Burns, in the treatment of these cases, says: 'Delivery by turning the child, has advantages over the other modes, and certainly ought, with scarcely any exception, to be resorted to. When the uterus is spasmodically and violently contracted between the rent and the os uteri, which I know is apt to happen if the fundus be lacerated, I consider attempts to deliver as adding to the danger.' In Case 2, therefore, he would have done nothing.

"Madame Boivin says: 'Si la tête est engagée dans l'excavation, il faut l'extraire avec le forceps. Si la tête n'était point susceptible d'éte saiser avec l'instrument, il faudrait faire l'extraction de l'enfant par les pieds; si ces extrémités étaient passées par la crevasse de l'utérus, il faudrait y faire pénétrer la main pour les ramener dans la cavité utérine et les extraire par l'orifice naturel.'

"So almost universally fatal are these cases that many authors have advised that they should be left to nature, some patients having recovered when so treated. They have been, perhaps, led to this conclusion, partly from the humane feeling that the few remaining minutes of the patient's life ought not to be embittered by the agony which any attempt at delivery would be sure to produce. But these feelings must be allowed to have no weight with us when we know that any little chance a woman may have is greatly decreased by her remaining undelivered. Out of thirty-four cases reported by Dr. Collins, *two* recovered. Who can tell, when he has the misfortune to meet with a case of ruptured uterus, that the patient under his care may not be one of the few who, if properly delivered, may again be restored to health? It is our duty, therefore, to consider no case as hopeless, and to continue to exercise, while life remains, our utmost skill. The question left then is:—

"*What is the best treatment in these cases?*

"(*a*) All modern writers are pretty generally agreed that in cases of rupture of the uterus the child speedily dies. Unless, therefore, delivery be rapidly completed, the child must necessarily be sacrificed. The knowledge of this is of great importance, for we might sometimes be induced to adopt modes of delivery both more painful to the mother and more difficult to the attendant, if we thought there was any likelihood of saving the child.

"(*b*) If rupture of the uterus takes place during the presence of the medical attendant, and be at once recognized, turning, if practicable, should at once be accomplished—unless

"(*c*) The head be so nearly born that the forceps can be readily applied, and the labour to all appearances be easily terminated. In this case the forceps should certainly be used, for as the laceration usually takes place at the junction of the uterus with the vagina, the obstacle to delivery, which it has been the object of this paper to demonstrate, would in a large proportion of cases not exist. The patient should have the benefit of our knowledge on this point, for if we attempted to push back the head for the purpose of turning, we might either increase the extent of the laceration, or cause the child to be protruded still farther into the abdominal cavity.

"(*d*) If at the time of the rupture the head of the child is firmly fixed in the pelvis, and does not recede before the hand, turning in such a case would be madness. The child must be considered doomed, and the treatment recommended by Dr. Collins would be the best to adopt. The head should be lessened and the child brought away by the crotchet.

"(*e*) But if, after lessening the head, delivery be still impracticable, the thighs of the child will then be found most likely to be hooked over the edge of the rupture, and in this case the treatment of Madame Boivin would be best. The hand must be introduced into the uterus, and the extremity or extremities of the child must be withdrawn from the abdominal cavity into the uterus, and the child extracted by the feet. Case 2 shows how necessary it is to secure both feet.

"(*f*) If, at the time of the rupture, the head recedes so as to make it difficult to operate upon it, it will be better to turn at once, and to secure both extremities as above.

"(*g*) If the arm presents, as in Case 2, it will be best to lessen the thorax and to bring down the hips. If it be found from the difficulty in extracting, or from external examination, that the thighs were hooked through the uterus, the operation will still have been of service, for the hand will be more easily passed for the purpose of securing the extremities and turning as above.

"(*h*) Whatever mode of treatment is adopted, it will be found worse than useless to drag away at the child while one or more of its thighs are hooked over the edge of any laceration of the uterus not extending into the vagina."—*Med. Times and Gaz.*, Nov. 19, 1859.

40. *On the Pathology and Treatment of Placenta Prævia.* By Dr. A. S. Donkin, of Newcastle-upon-Tyne.—Dr. Donkin's object in this paper is to show that in those cases in which the placenta is detached, and the hemorrhage arrested by nature's spontaneous effort, *the separation of the placenta and the arrest of the flooding do not stand in the relation of cause and effect, but as the concomitant result of cervical expansion; both progressing* pari passu. *Nature then does not separate the placenta completely from the cervix, until the very period arrives when she has completed the mechanical closure of the mouths of the utero-placental vessels, which have been opened in the process.* The *forcible detachment* of the placenta by the finger, *to any extent*, is therefore *incorrect in principle*, inasmuch as it merely tears off the placenta, without making any provision for arresting the hemorrhage, which flows from the vascular orifices opened on the cervix by the operation.

The practical objections to which artificial detachment of the placenta is liable, as proved by experience, are the following: *First*, the gross mortality in those cases in which it has been employed is equivalent to one in four-sixteenths; while the gross mortality in cases of spontaneous expulsion of the placenta is only one in fourteen and a half. *Secondly*, that although introduced into practice for the ostensible purpose of preventing the necessity of turning in a certain class of cases, we find that exactly *one half* of the cases treated by this method subsequently required the operation of turning in addition.[1] Notwithstanding these objections, the fact must not be ignored, that in a considerable number of cases a cessation of the hemorrhage has followed this practice—a result which appears in many instances to have saved the life of the mother. But as the operation is attended and immediately followed by a profuse flow of blood, this, by suddenly and powerfully depressing the heart's action, will permit the process of coagulation to take place in the bleeding mouths of the vessels. In this manner we may account for the subsequent arrest of the flooding; for we know that a sudden and copious gush of blood, by its salutary influence in producing early and temporary prostration and collapse, and thereby enabling coagula to form, is considerably less dangerous to life than a small and continuous stream of blood, which seldom acts on the circulation until it does so with a force which is at once irretrievably fatal. Thus, in thirty-one of the recorded cases, or about one-half of the entire number treated by this method, it is expressly stated that the detachment of the placenta was resorted to under the condition of extreme exhaustion.[2] Now in these cases the already existing prostration of the circulation was unquestionably such as would enable coagulation to plug up the open mouths of the utero-placental vessels, and thereby prevent further bleeding. In other cases, again, it would seem that the operation was performed at the period when nature would have detached the organ; so that in these cases the arrest of the flooding can be accounted for by the change which the cervix had already undergone.

So far, then, as our statistical knowledge will enable us to judge of the value of this method of treating *placenta prævia*, it would appear not to have been attended with the success which was anticipated on its first introduction into practice; consequently, we are justified in attempting to devise some other means of arresting the flooding in the early stage of labour, in those cases whose characters rank them in the second class already defined. If we desire any method of treatment to be successful in these hazardous cases, we ought to endeavour to base it on a correct appreciation of the process which nature brings into operation to arrest the hemorrhage. If, therefore, it is correct that the process in question is *expansion of the cervix*, we ought to assist her in effecting it, when her own powers are inadequate for the purpose.

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[1] In Dr. Trask's Statistical Table III., we find that, up to the period of its publication, in 1855, the total number of cases on record in which the placenta was forcibly detached by the finger amounted to 66; of these, 47 recovered and 13 died; while 33, or exactly half the number, required the operation of turning in addition.

[2] Of these cases, 23 recovered and 8 died, giving a mortality of more than 1 in 3, or exactly 1 in $2\frac{7}{8}$.

It is from these considerations that, in the cases alluded to, in which something must always be done not only to check the flooding but to advance the labour, that *mechanical expansion of the cervix, by means of a sponge-tent specially constructed for the purpose*, is recommended as a method of treatment. From the operation of this procedure, the following results may reasonably be expected:—

1. It would gradually throw off the placenta, and by putting the fibrous structure of the cervix on the stretch, it would compress the utero-placental vessels. In other words, it would, by its action on the cervix, detach the placenta and arrest the hemorrhage *pari passu.*

2. It would act both as a plug and as a powerful compress applied to the opened mouths of the utero-placental vessels.

3. It would excite uterine action.

In order to produce these important effects, the *sponge-tent* employed would require to be rounded at its upper extremity to prevent its introduction injuring the placenta: it would require to be of large size, and so constructed as to expand rapidly under the influence of tepid injections.

To this method of treatment might be added the administration of ergot, or the application of galvanism, as recommended by Dr. Mackenzie, of London, according to the peculiarities of each individual case.—*Edinburgh Med. Journ.*, April, 1859.

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41. *On the Harmlessness and Spontaneous Cure of Certain Uterine Polypi.* By M. VELPEAU.—On the 14th of last November, a woman of good constitution, forty years of age, came under the care of M. Velpeau on account of menorrhagia, moderately severe, and alternating with leucorrhœa. A practitioner previously consulted by the patient had recognized the existence of a thin uterine polypus, about an inch long and three or four lines thick, and presenting the appearance of the clapper of a bell. M. Velpeau, supposing that this polypus had nothing to do with the discharges complained of by the patient, at first limited himself to prescribing astringent injections containing alum. Under this treatment the leucorrhœa sensibly diminished, and perhaps the same would have been the case with the menorrhagia; but as the patient was anxious to be relieved of the tumour, M. Velpeau proceeded to its extraction, which was effected in the simplest manner. The left index finger having been carried up to the neck of the uterus below the polypus, ordinary forceps were guided along the finger, seized the morbid growth, and withdrew it after two or three efforts of torsion. This little operation was performed on the 2d of December. On the 10th, M. Velpeau examined the cervix by means of the speculum, proposing to destroy the remainder of the pedicle with the acid nitrate of mercury; but neither examination by the eye nor by the finger could recognize the least trace of it. Cauterization was therefore judged unnecessary, and the patient was discharged with directions to continue the use of astringent injections.

In reference to the consecutive cauterization, M. Velpeau has remarked that this operation is not always necessary in the treatment of uterine polypi. It is indispensable when we have to do with vegetations of the mucous tissue; but when the polypus is implanted above the transverse diameter of the uterus, we may limit ourselves to cutting the tumour at the point of junction with the pedicle, or to enucleating it by a simple incision, without minding what shall become of the pedicle. For these latter polypi are veritable foreign bodies developed in the thickness of the uterine tissue, in which they have formed a sac; and this sac once emptied, the walls retract, without the patient being exposed to any danger from a relapse.

M. Velpeau took the opportunity of making some remarks upon the harmlessness and spontaneous cure of certain fibrous polypi of the uterus. The accidents produced by uterine polypi are not, said the Professor, in relation with their volume. Some polypi of considerable size produce only a trifling discharge; nothing, however, is more common in private practice than false impressions on this point. Thus there is no opinion more common in society, and even among the medical profession, than that which regards a polypus of the uterus as a very serious affection, and imperatively requiring surgical interference. Nevertheless, there are many polypi which do not at all affect the general health. and which even disappear spontaneously. Sometimes the pedicle gradually becomes thinner, and breaks in consequence of some displacement of the uterus, and the polypus drops off like a ripe fruit; at other times softening and gangrenous destruction of the morbid growth take place. Accordingly, if you are called in. and finding a polypus of the size of a chestnut, you recommend its removal, at the same time describing and exaggerating the evils it might occasion. in general your advice will be followed, and all will go on well. But, on the contrary, it may happen that your advice is not followed; and then, as the polypus may give rise to no bad effects, you will be looked upon as an ignoramus, or it will be supposed that you were influenced by interested motives. As these cases are not rare, it may be well to call to them the attention of practitioners:—

Six years ago, M. Velpeau was consulted by a lady on account of ill-defined sensations in the lower part of the belly. He examined her, and found a pyriform polypus of the size of a walnut. He recommended the patient to submit to an operation, and pointed out to her the danger which the presence of the polypus might occasion. She consented, and the day for the operation was fixed; but when M. Velpeau arrived. he learned that his patient had yielded to a sudden impulse of terror, and that she was gone. But this lady returned a year afterwards, and the polypus in the interval had occasioned no unpleasant effects. Nevertheless, M. Velpeau still insisted upon the necessity of an operation, but without success. Three years elapsed, and at the end of that time the polypus had undergone a notable diminution. Now it is reduced to a small tubercle, and for the last six years has been perfectly inoffensive.

M. Velpeau also quoted the case of a lady in Paris, in whom fifteen years ago he had recognized the presence of a uterine polypus, which appeared to occasion abundant hemorrhage at the menstrual periods. The patient was at first disposed to be operated upon, but subsequently drew back; and at the end of three or four years there was neither hemorrhage nor polypus. Indeed, M. Velpeau is not quite certain that these polypi are always the cause of the red or white discharges, which are supposed to depend upon them; and it is on this account that, in the case of the woman who had been the occasion for these remarks, M. Velpeau had only been led to operate by her own strongly expressed wish.—*Edin. Med. Journ.*, February, 1860, from *Journal de Médecine et de Chirurgie Pratiques.*

MEDICAL JURISPRUDENCE AND TOXICOLOGY.

42. *Cases of Sudden Delivery.*—M. Ameuille related an interesting case to the Paris Société Medico-Pratique, in illustration of the following question: May a primipara of robust frame become delivered of a full-timed, well-formed infant, and this infant fall into a privy, the mother resorting there simply to satisfy a want? In the present case, a lady, aged twenty, in robust health, having become with child by a young man, left her home in the country, and repaired to a Paris lodging-house; and awaiting admission into the maternity, she had made no preparations for the reception of the child. She was taken ill in the night, and had several motions; and at last, while proceeding towards the vessel, to pass, as she believed, another, the child dropped from her on the carpet. Her intention was, had not a more sudden pain seized her, to have repaired to the privy, into which the child must certainly have dropped. It is obvious, with the mystery of the case and the want of preparation for the child, how easily a charge of infanticide might, in the event of the child's having fallen into the privy, have been brought in such a case. M. Simonot had no doubt that a woman might be delivered of her first child without being aware of it. He knew the case of a lady who, at four o'clock, was walking about her room and laughing, there being no dilatation of the os or other sign of delivery, and who yet, in twenty minutes later, gave birth to a child and the placenta without pain or exclamation. M. Perrin had recently been called to a woman pregnant of her third child, who, taken first with a violent desire to pass water, and then to evacuate the bowels, passed a child into the utensil. Had the night not been so cold, she would have gone to the privy. There are many such facts on record;

but they may be usefully borne in mind when girls are charged with improperly disposing of the fruits of illicit intercourse, and even when accompanying circumstances are suspicious.—*Med. Times and Gaz.*, Jan. 28th, from *L'Union Med.*, No. 8.

43. *Poisoning by Arsenic.*—Dr. Blondlot has communicated, in a paper to the Paris Academy of Sciences, a fact which may be highly valuable in cases of poisoning by arsenic. After numerous experiments, he has come to the conclusion that the slightest quantity of greasy matter in contact with arsenious acid will reduce its solubility to about one-twentieth of what it was before. This explains at once why, in certain judicial investigations, arsenic has been sought for in vain in the liquid portion of the food contained in the stomach, when the food partly consisted of fatty substances, such as broth, milk, etc. It likewise explains how arsenious acid, taken in powder, may sometimes have sojourned a long time in the stomach before it produced any deleterious effect, since in such cases its action was hindered by the presence of fatty substances. Jugglers have been seen swallowing arsenic with impunity, because, according to Dr. Blondlot, they had previously taken the precaution to drink milk and eat fat bacon. Hence it follows that in cases of poisoning by arsenic fatty substances may be administered as real antidotes, capable of suspending the action of the poison for a considerable time, until more radical means of effecting a cure can be applied.—*Med. Times and Gaz.*, Feb. 11, 1860.

MISCELLANEOUS.

44. *University of London. New regulations creating two degrees: one of Bachelor and the other of Doctor of Science.*—We comply with pleasure with the request of the Registrar of the University of London, and give place to the following communication, to which we would invite especial attention:—

UNIVERSITY OF LONDON,
Burlington House, London, December 27, 1859.

SIR: The Senate of this University having recently instituted, in accordance with representations made to it by many of the most eminent men of science in this country, the degrees of *Bachelor* and *Doctor* of Science, I beg to forward you a copy of the regulations relating to these degrees; and shall be glad if you can draw the attention of the public through your columns, not only to the fact that such degrees may now be obtained, but also to the general conditions on which they will be granted. It is provided by these regulations that the acquirements of the candidate shall in the first place be tested by the matriculation examination, which candidates for the other degrees conferred by the University are required to pass before entering upon their special courses of study; that the degree of *Bachelor* of Science shall take rank with that of Bachelor of Arts, being conferred (like it) after two consecutive examinations at an interval of a year from each other and from the matriculation examination, and attesting the general knowledge acquired by the graduate of the fundamental principles and most important facts of the chief divisions of science; and that the degree of *Doctor* of Science shall be conferred only upon such candidates as have not merely given evidence of general scientific attainment, but have shown themselves to possess a very high proficiency, both theoretical and practical, in some one branch of scientific knowledge.

In following the course of study required as a preparation for these degrees, candidates are left to their own free choice, both as to locality and as to instructors; and it might be well if you would take the opportunity of informing the public, that by the new charter recently granted to the University, candidates for its degrees in *Arts* now enjoy the same liberty (as you will see by the regulations, of which I inclose a copy), so that these degrees also are now open to every one who can stand the test of the successive examinations to which candidates for them are subjected.

I have the honour to be, sir, your obedient servant,

WILLIAM B. CARPENTER, M. D., F. R. S., *Registrar.*

AMERICAN INTELLIGENCE.

ORIGINAL COMMUNICATIONS.

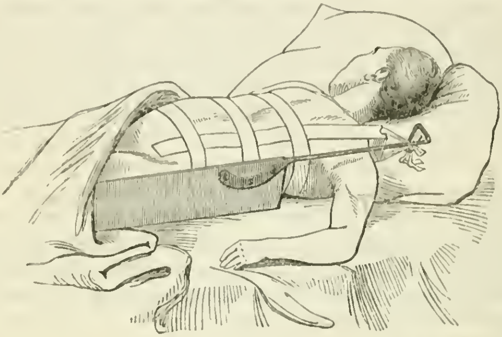
Singular Anomaly of Conformation in a Lung. By John H. Packard, M. D., of Philadelphia.—A few days since, in making a post-mortem examination of the body of a gentleman about 35 years of age, I found the left lung to consist of two distinct portions; the usual fissure between the upper and lower lobes extending completely through to the root of the organ. One division of the left bronchus, one branch of the left pulmonary artery, and one pulmonary vein, passed down to the lower segment. A marked difference in colour existed between the two portions; the lower was very pale, and of an ashy gray colour, while the upper was deep red, and congested. The upper surface of the lower portion was quite uneven, being puckered as if by the formation of a cicatrix; the corresponding lower surface of the upper segment was perfectly regular in its concavity.

The pulmonary substance, on both sides, was completely studded with miliary tubercles. Between the costal and visceral layers of the right pleura, universal adhesion had taken place; nothing unusual was observed in the conformation of the right lung.

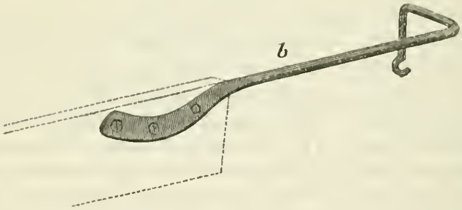
So far as I am aware, no actual observation of this anomaly has ever been recorded, although allusions to its possibility are made by Otto (*Compendium of Human and Comparative Pathological Anatomy*, translated by South), and by Lebert (*Anatomie Pathologique*). I believe that this is, in fact, the first anomaly of any importance, affecting a lung, that has come under my notice, in a somewhat extended range of dissections and post-mortem examinations. (Dr. Ellerslie Wallace, Demonstrator of Anatomy in the Jefferson College, informs me that he has twice met with similar cases; in one, the two portions were attached to one another by very slight pleuritic adhesions; in the other, they were entirely unconnected.)

Counter-extension in Fractures of the Femur. By H. Lenox Hodge, M. D., Resident Physician in the Pennsylvania Hospital (with two woodcuts).—It is of course well known that excellent results may be obtained, by care and attention, in cases of fracture of the thigh, where adhesive plaster has been the means used for extension, and a perineal band for counter-extension. But, notwithstanding constant bathings and rubbings, the patients always regard the groin as a tender spot; sometimes excoriations there cannot be prevented, and oftentimes the apparatus must be loosened to relieve the suffering produced. On these accounts many substitutes for the perineal band have been proposed. Among the most recent is Dr. Gilbert's bands of adhesive plaster in the groin. The advantages of this plan are great. The relief afforded to patients in the hospital, whenever this was substituted for the usual perineal band, was marked. Yet it has been found that whether the bands were made as wide as originally recommended or much narrower, or whether two "were fused together," still they would wrinkle in the groin, and thus irritate the part. As the splint rises higher from increased extension, the bands, meeting it at an angle, are pushed further up on the abdomen, and thus are gradually loosened. As soon as the urine touches them, which so often happens in elderly persons and children, their attachment to the part ceases, and they must be renewed. After testing various modifications, the substitute, as represented in the adjoining figure, would seem to compare favourably with its counterpart on the leg for extension. A bar of wrought iron or steel, of the shape exhibited in *b*, is fastened to the outer and upper part of Physick's long splint by means of bolts with movable nuts. This bar must be bent, to the right or left, in accordance with the side to which it is to be applied. The splint should be wide enough to allow the bar to pass clear of the patient's arm and shoulder. A long strip of adhesive plaster, about two and a half inches wide, is applied from the pelvis in front up and over the shoulder, leaving a small loop at the latter part, in which is placed a small block; the strip of plaster is then continued down the back and on to the buttock. Three bands of plaster are then passed completely round the body. A tape is placed over the block of wood, attached in the loop of the plaster, and tied to the hook seen in *b*. The block of wood is intended, like that we use in the extending band, to keep the strips apart so as to draw upon the body in parallel lines, and without wrinkling. This apparatus has been tried in three cases. In these it was found that continued and powerful extension could be made without causing pain, that the patient was prevented from sitting up and thus moving the ends of the broken bone, and that extension and counter-extension were made fairly in the same line. The supposed objections to the plan are that the respiration would be impeded, and that the plaster would soon loosen on the ever-moving thorax and abdomen. As regards the former, much greater constriction of the chest has always been employed in the treatment of fractures of the ribs, even when the patient was up and moving about, without causing any inconvenience.

a



b



Under the support of the circular bands the plaster is not so apt to loosen, but will retain its hold perfectly for at least two or three weeks. The materials for this method of counter-extension are obtainable anywhere, and may be readily applied to any of the various modes of treating a fracture of the femur in the extended position.

Foreign Body in the Nose; Novel Plan of Removal. By W. S. King, M. D., Surgeon U. S. A.—This case, as related to me, was as follows: Some time during the past summer, a cherry-stone became lodged in the nares of a small child. All attempts at removal having failed on the part of the parents, the child was brought to Albuquerque, and placed in the charge of a physician. The efforts made to dislodge the stone by this gentleman, not meeting with success, the patient was taken to the village barber, who, in addition to his tonsorial functions, practised the healing art. The barber promised immediate success. He administered a powerful emetic, and watching its operation, at the moment when vomiting was about to commence, clapped a handkerchief tightly over the mouth of the child. Either from the violent expulsion of the contents of the stomach against the posterior nares, exit being denied by the mouth, or, the impulse given by the expired air through the same channel, the cherry-stone dropped on the floor.

Ovarian Dropsy—Ovariotomy. By Dr. B. Roemer, Otter Bridge, Va.—October 25th, 1858. Visited Mrs. L., age 38 years; has been married eight years, and given birth to six children, the youngest three years old. Two or three months after her last accouchement, June, 1855, she felt slight uneasiness in the right iliac fossa, and subsequently an enlargement. On examination, found the abdomen of the size of a full nine months' gestation, hard to the touch, and, on pressure, producing a peculiar sound, similar to that of walking upon well crystallized snow. A large tumour occupied the whole pelvic cavity, pressing against the diaphragm, where the known line of demarcation was well developed. Complained of dyspnœa. A solid enlargement was discovered to adhere, and consequently move with the mass; slight adhesions only diagnosticated; catamenia regular. There existed a periodic monthly exacerbation, the mass enlarging, and afterwards resuming a comparatively smaller compass;[1] uterus somewhat depressed, os *in sitû;* bowels and bladder acting; fluctuation indistinct; hence a multilocular ovarian cyst was presumed. I advised preparations of iodine, especially the hydr. protoiod., bandaging, etc., and directed her attention to an operation as the only reliable course for radical cure.

Received on December 5th, 1858, a letter, informing me of the non-success of the treatment adopted, and of the increasing symptoms towards a fatal issue. Was requested to appoint a day for the operation.

Was met on December 9th by Drs. Withers, of Leesville, Ward, and Dillard. The catamenia being present, I postponed until the 12th, on which day I proceeded to the operation, in presence of Drs. Adams and Hervitt, in addition to the above-named gentlemen.

Rectum and bladder empty; chloroform being administered by Dr. Withers, I commenced with an exploratory incision, five inches in length, along the linea alba, below the umbilicus, laying bare the cyst. No adhesions within reach of the finger; cyst not vascular. Partial excision discarded, for reasons hereafter to be assigned. Emptied the contents of the cyst with the lancet, and a large metallic catheter. The cyst having collapsed but imperfectly, a second cyst was suspected; but on examination, two internal tumours were discovered, for the passage of which the primary incision was enlarged to eight inches, leaving the umbilicus to the left. The whole tumour was now extravasated, whose pedicle was 2½ inches wide, 1½ inches thick, and about 8 inches in length. A double ligature of strong twine was placed through the centre of the pedicle, one inch from the cyst (taking the necessary precautions to avoid arteries), and tied to the right and left respectively, in a double knot. A third ligature was next laid immediately above the former, and the mass divided. An assistant holding the pedicle, the wound was closed (the left ovarium having been found healthy), and the ligatured end secured with a director at right angles with the axis of the body. A many-tailed bandage was applied around the abdomen, together with the usual adhesive strips and water-dressing.

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[1] The monthly excitability of ovarian tumours has been observed by the writer in two other cases, and deserves perhaps a closer analysis in reference to better diagnosis of ovarian cysts.

The patient recovered well from the effects of chloroform, which—it is with both pleasure and justice I say it—had been uniformly and cautiously administered, vomited once during the operation, which was followed by a convulsive effort to expel the tumour through the incision. Two grains of solid opium were given as soon as the patient was brought to her bed. I will omit the treatment in detail, and will only remark that no symptoms of inflammation (peritonitis, etc.), showed themselves, except on Jan. 4th, 1859, in consequence of mental excitement. The pulse ranged in the first week from 130 to 100 to the minute; the appetite continued good; the catheter was introduced at stated intervals, for the first five days, after which time the bladder acted spontaneously. The bowels were moved on the 6th day. Removed the upper and lower sutures on the 9th day, the next two on the 13th, the intermediate silk sutures on December 26th, and the ligatures of the pedicle on January 2d, 1859; the pedicle was firmly adhering, and the abdominal walls had united. Was allowed to sit up on January 19th. The patient changed her home during February, and attended to her household duties. I am informed that Mrs. L. goes to church, two or three miles from her house, which distance she walks without any inconvenience, and expresses herself to feel as well as she ever did.

Remarks.—The cyst and contents weighed twenty-five pounds. The liquid was of a dark brown colour, of the consistence of molasses, and mixed with but few *débris* of mucous matter. Amount of liquid four gallons. On opening the cyst, two internal tumours were found, one eight inches in its convex aspect, near to the insertion of the pedicle, and the other somewhat smaller, and opposite to the first. The nature of the secondary cysts was tubercular, containing a yellowish, waxy matter; their walls had, in common with the primary cyst, two lining membranes. The formation of these secondary cysts, the difficulty of a correct diagnosis, and the impossibility of judging of their pathology, seem to me to forbid partial excision. Their supply of blood is sufficient for growth, even under unfavourable circumstances, as pressure, and determination of unhealthy action in another direction; the removal of that pressure, and the altered condition of the cyst itself may effect a cure of the disease attacked, but beget another of similar, or, perhaps, more malignant character. This result is the more probable from the secretive, but not absorptive nature of their lining membranes. In conclusion, I would state that a stylus of silver, pure lead, or brass, is preferable to a common director, in securing the pedicle external to the abdomen, for the obvious reason of their not corroding.

Fatal Hæmatemesis in Cancer of the Liver with Biliary Calculus.

By James Corse, M. D.

Sarah ——, aged 28 years, married, and the mother of one child, has for many years been subject to occasional bilious attacks, at intervals of several months, occurring suddenly, with severe pain in the right side, near the lower ribs. They were supposed to be from colic, and would generally subside under the influence of large doses of laudanum, followed with active cathartics. She usually became very yellow after the pain abated, and felt great debility for a week or two; the severity of the suffering and the duration of the subsequent debility being increased with each succeeding attack.

On the 6th of July, 1857, I was called in the evening to see her while in the agony of one of these spells. She had gone the round of remedies to which she was accustomed, without having obtained the usual relief. I found her pale and very prostrate, the cathartic medicine having been vomited without having acted on the bowels. She was placed under a course of anodyne treatment until the pain abated, and then of cathartics, after which she soon recovered.

On the 17th of May, 1859, I was sent for again, and found that she had been under treatment for some time without relief. She was deathly pale, and extremely prostrate; the pulse was frequent, weak, and fluttering; the surface of her body was bathed in a clammy sweat, not exactly that of a moribund, yet closely approaching it. I learned that she had been suffering from the extreme pain in the right side, as formerly, and had also been *vomiting blood in large quantities for several days*, the bowels being obstinately constipated. Under appropriate remedies the pain ceased, and she reacted. I then directed attention to the bowels; gave ol. ricini and magnes. sulph. freely, but without the desired effect, as they were successively vomited. I then gave ol. tiglii in pills, and finally obtained an evacuation. The discharge was enormous in quantity, and consisted of clots of blood, and a dark, thick, and very fetid matter, the smell of which was in no degree like that of fecal matter. The members of the family were alarmed, and ran to tell me that she had voided her bowels, which they had kept for my inspection. The whole mass was, after a short but severe pain, expelled in the bed, the patient being unable to rise. From this mass I removed a few of what they supposed to be her bowels, and found them to be clots of blood, one of which was thirty inches in length. These clots have been moulded in the intestine in such a manner as to give us the cast of the cavity; the valvulæ conniventes are here represented very perfectly. This evacuation was followed by temporary relief, but a recurrence of pain soon took place. The skin then became dry and hot; the tongue dry, and accompanied with thirst; pulse full and frequent.

A course of treatment for inflammation was commenced, but soon interrupted by her tendency to sink, which steadily increased until she expired, a little more than twenty-four hours after the accession of the acute inflammation.

On *post-mortem* examination, the liver was found to be in a cancerous state, there being several small tumours (half a dozen or more) from half an inch to one inch in diameter, some of them being broken down, in a state of apparent suppuration. There was also circumscribed peritonitis, with much exudation of lymph. Adhesions had formed to the parietes of the abdomen, apparently in the effort to make an external opening; one of these was cut through in opening the body. The pyloric region of the stomach, the upper end of the duodenum, the head of the pancreas, the gall-bladder, and the capsule of Glisson, were all adherent together in a fibrinous mass; this I removed, together with the entire stomach and a large portion of the liver. The intestines were healthy, but very pale. On further dissection and examination of the liver, I discovered a biliary calculus of a very large size, composed almost wholly of cholesterin. This calculus is globular in form, and eight lines in diameter. It was impacted in the ductus communis choledochus, blocking it up near its origin. An inflammatory action had followed the obstruction and distension of the duct, and resulted in the formation of artificial openings from it into the stomach and duodenum. Each of these false passages from the sac or cyst containing the calculus is distinct; the one into the stomach opens about three-quarters of an inch from the pylorus. There were three into the duodenum, and all opened near the orifice of the natural canal.

The ulcerative action around had opened a communication into the adjacent bloodvessels, and that produced the profuse hemorrhage.

American Surgeons in the Russian Army in the Crimea; Prevalence of Typhus Fever and Hospital Gangrene in the Russian Hospitals; Creasote as an application to Gangrenous Stumps. By C. R. PARKE, M. D., of Bloomington, Ill., late Assistant Surgeon in the Russian Military Service. (Extracted from a letter to Dr. Edward Hartshorne.)

I shall not at this time attempt to write an article on the medical and surgical practice in the Crimea, but will give you some of the leading facts connected therewith, from which you may be able to make some suggestions that will interest the profession. At some future time I intend reading a paper on this subject before our county society.

1. The Crimea is nearly surrounded by water; the Sea of Azof being on the east, and the Black Sea on the south and west. Hence there is a constant moisture in the atmosphere, enabling vegetable life to produce its kind luxuriantly. Although it is as far north as Quebec, many shrubs and other plants endure their long winters well, which, if transplanted into Illinois, several degrees further south, would be frozen out in the first winter. The southern and eastern portion of the Crimea is belted with a beautiful range of mountains, in the valleys of which grow nearly all kinds of vegetable products, but especially the vine. The winter is long; snow, rain, and mud succeeding each other in abundance. The summer is dry and delightful.

2. Most of the buildings used as hospitals in the Crimea were illy-adapted to such purposes; being mostly dwellings voluntarily given to the government for that particular use during the war; and such other public buildings as could be spared for the time. In all these temporary hospitals there was a great want of proper ventilation; the dwellings, particularly, being cut up into chambers ten by fifteen feet, and sometimes less. The only means of ventilation, or arrangements intended for that purpose, were small valves in one of the upper window-panes, about six inches in diameter; and it was only an occasional window that was even blessed with this air-hole. The doors communicating between the different chambers or apartments were always open. The surgical patients were kept in wards by themselves, but in the same buildings with those affected with typhus fever and other diseases. Small single cots were packed in, as close as possible, leaving barely room enough for the surgeon to walk between. Sometimes, after a fresh arrival, the floors would be covered with patients for a day or two, until they could

be distributed. It is the custom of the country to wax the floors and polish them with brushes made fast to the boots. The floors were kept as clean as possible, and were frequently wiped up with a solution of chlorinated lime, as were also the feet of the cots.

3. Several hospitals had a general superior who visited occasionally, and had a general supervision over all of us, as well as over the financial matters. Then there was another Russian physician, whose duty it was to be on the spot daily, to superintend that particular hospital, and to make known to us the will of our superior. Each American and German surgeon had his own particular ward or wards, with some six or eight dressers, who were selected from amongst the convalescent soldiers (serfs). As a general thing they were very poor nurses, requiring to be watched in order that their duties should be properly performed. The medical men of Russia are not, as a class, equal to the profession in other countries. The great majority of those in the Crimea being what they call "*ordinators*," graduated only in medicine. To many things the American surgeons could not subscribe; but we had to obey orders, even when our knowledge and judgment dictated to us a different and far better course. Proper ventilation was, amongst these matters of difference, one of our principal subjects of contention. It was quite common for all of us to suffer with headache before we had been in the hospital an hour. The windows were never opened, except when the American surgeons ordered it; and, I suppose, were immediately closed after we left, even in wards where gangrene reigned almost supreme. Our superiors in *rank* did not seem to appreciate the actual necessity of pure air in typhus and gangrenous wards.

4. The average number of sick and wounded in Simphopol (the capital, thirty miles from Sevastopol), during the winter of 1855 and 1856, was 15,000—a little over one-third of all the sick and wounded in the Crimea. The average number of deaths per day out of this 15,000 was 133, mostly from typhus fever and the effects of gangrene.

5. The Russians used acid. muriaticum dilut. almost exclusively in typhus fever. This was probably as good as any other medicine, while the patient was allowed to breathe the impure air of a typhus ward. It is only necessary to say that I have no confidence in it whatever, when used under such circumstances. One-half of the typhus patients suffered from parotiditis, which was sometimes suffocating.

6. I will merely state, on this occasion, that my experience in treating erysipelas with olive oil and cotton batting were quite satisfactory. I oiled the parts all over, then bound them up in the cotton.

7. Hospital gangrene in wounds and stumps was the great curse of the surgical wards. I cannot speak too highly of creasote in this disease. I have seen gangrenous stumps looking perfectly healthy in forty-eight hours, and sometimes in twenty-four, after the application of creasote in the following manner: Where the gangrene had affected the stump to the extent of half an inch or less, I have taken a swab and applied the pure oil all over the diseased parts and in the irregular cavities, then covered the parts with a cloth smeared over with a liniment composed of creasote ʒj, olive oil Oj. As I said, frequently in twenty-four hours the whole gangrenous mass would come off with the removal of the dressing. The protruding bone was never cut off, but left until it became partially absorbed within the healthy granular mass, when it was taken hold of with forceps, twisted off, and extracted. The time necessary for this absorption generally amounted to several weeks after the stump had taken on healthy action.

In conclusion, let me say, our patients had a good diet; being served with plenty of soup, good fresh meat, rye and buckwheat bread (which they preferred), and occasionally good *light* wheat bread, "*vodka*" (rye whisky) twice a day, and sometimes wine.

I am satisfied (climate and all things considered) that, had the medical and surgical departments been properly managed, the mortality above stated might have been greatly reduced.

N. B.—Dr. Parke informed me that of twenty-seven young American surgeons who served in the Russian hospitals during the late war, nine died of disease contracted in the wards—seven of typhus fever, and two of cholera. E. H.

Dr. Gott's Case of Excision of the Right Superior Maxilla and a Portion of the Left.—Since the account of this case was printed off (see pp. 344-8) we have received the following letter from Dr. G., dated Readstown, March 7, 1860, which gives the history of the case up to that date:—

Dear Sir: * * * I have seen Mr. Guist repeatedly since the operation in May last, and upon inquiry was informed that his general health had improved beyond his expectations. I accidentally met him in the forepart of last month, when he gave me the agreeable information that his health was better than it had been for the past two years; he also informed me of his marriage, and of his intention to rent a farm this spring.

The side of the face from which the tumour was removed appeared very much sunken for three or four months after the operation, but it has now filled out to a greater degree than one would have supposed, so that now there is scarcely any deformity remaining, except that resulting from the incisions. It is now nearly a year since the operation was performed, and there is no evidence as yet of the return of the disease. I do earnestly hope the young man will be spared further infliction from it, for he has suffered a great deal. Should anything of the kind take place, I shall deem it my duty to let you know.

Yours truly, WILLIAM A. GOTT.

Correction.—ISAAC HAYS, M. D., *Sir:* In the October number of the *American Journal of the Medical Sciences*, it was stated, in describing the operation for ligating the arteria innominata, that the summit of the sternum was removed. It should have been the right side of the summit of the sternum.

This was possibly a mistake of my own, or that of my amanuensis, or of the printer; and as it is a material point in the true description of that operation, I consider it of sufficient importance to request you to correct it.

Yours respectfully, E. S. COOPER.

SAN FRANCISCO, CAL., Dec. 17, 1859.

DOMESTIC SUMMARY.

Aneurism of the Ischiatic Artery; Ligature of this Vessel, and subsequently of the Primitive Iliac Artery—Prof. L. A. DUGAS relates (*Southern Med. and Surg. Journ.*, Oct., 1859) the following example of this:—

W. M. J., aged twenty-four years, came under Dr. D.'s care, in March, 1857.

He stated that when four years old, he fell from a tree and struck with his seat upon a rocky surface; but has no recollection of any contusion or injury to the part at that time. He was told that he was so badly stunned, that he was carried home insensible. About five years after this, he first felt a little tumour in the region of the tuberosity of the ischium, which has been steadily increasing ever since. He does not know when it began to pulsate, but thinks it has done so for several years. About a year ago a "Cancer Doctor" said, "he could cure him with plasters that would eat out the tumour." A plaster was accordingly applied, which gave him such intense pain, and caused so much inflammation and tumefaction, that he refused to have it repeated.

His condition, when Dr. D. examined him, was noted as follows: General health apparently very good; has a tumour as large as a goose's egg upon the inner cheek of the nates, near the tuberosity of the ischium, and extending upward and inward in the direction of the well-known course of the ischiatic artery. It is easy to grasp the whole tumour in the hand, and no distinct neck can be felt extending up beneath the gluteus maximus.

Its lower extremity protrudes about two inches beyond the general surface, is somewhat conical, soft to the touch, and feels as though there was no more than the thickness of the skin between its contents and the finger. The skin is also here of a red or dark hue, not unlike that presented by an acute abscess on the point of bursting. The tumour evidently contains a fluid which may be forced out of it by pressure, and which returns immediately when this is discontinued, the current of egress and of ingress being distinctly felt by the finger. The tumour pulsates visibly to the eye and sensibly to the hand; a distinct aneurismal thrill or whiz, with beats synchronous with the action of the heart, may be easily detected with the naked ear or with the stethoscope over the entire tumour, and *along the course of the ischiatic artery up to the sciatic notch, where it is most audible.* Firm pressure *upon the seat of the ischiatic artery at its exit from the pelvis, arrests both the pulsation and the whiz, and these return when the pressure is omitted.*

The tumour never gives him any pain, except when he rides on horseback, or sits long upon it. It then feels heavy and sore. It is evidently an aneurism of the *ischiatic artery*, probably induced by the traumatic cause above mentioned.

The following operation was performed on Monday, the 16th of March, in presence of a number of physicians and students: concentrated chloric ether was inhaled to intoxication, but not to coma; an incision five inches long was made in the middle of a line drawn from the posterior superior spinous process of the ilium, to the tuberosity of the ischium, and carried through the gluteus maximus which was unusually thick; ligated one small artery; exposed the inferior margin of the pyriformis, and found the ischiatic artery beating strongly and with a distinct thrill to the finger. When this was compressed, the pulsation in the tumour ceased, but would return upon removing the pressure. The vessel was now ligated with silk and the tumour ceased to pulsate and became pale and flabby. The edges of the wound were brought together with quill sutures, and a firm compressing bandage applied to the tumour. Two hours after the operation, a freezing mixture of ice and salt was applied for ten minutes to the tumour, over the bandage, and forty drops tr. opii administered.

March 17. Passed a bad night in consequence of febrile excitement and confined position; is still feverish and feels "sore all over;" no pulsation nor whiz in the tumour. Reapplied freezing mixture to tumour.

18*th*. More comfortable; no febrile excitement.

19*th*. Very comfortable; no pain; no pulsation in the tumour; removed the bandages and found that the tumour resumed partially its former fulness, but no pulse nor thrill detected by applying the ear. Some sanious pus discharged from wound upon pressure; did not disturb the sutures, but reapplied the compressing bandage. Bowels to be kept quiet with opiates.

20*th*. Feels very well; compresses got off during the night; the ligature upon the muscular branch came away; slight pulsation and sound detected in the tumour; compresses reapplied.

22*d*. Has had hemorrhage from the nose to-day; pulsation still perceptible slightly; adhesion of wound nearly complete, but suspecting pus beneath, I removed the quill sutures and found suppuration pretty free from deep-seated parts.

24th. This morning at 8 o'clock the patient got out of bed, and on seating himself for an alvine evacuation, felt something suddenly "give way," and was immediately deluged with blood flowing from the wound. He was at once assisted to the bed and placed upon his abdomen, while pressure was exerted upon the wound. The bleeding ceased at once. On reaching him, about half an hour after the accident, and removing the dressing, no blood issued; the wound did not gape open, nor could I see from what point the blood escaped, although the quantity lost was estimated by his room-mates at from a pint to a quart. The ligature still in place, with the projecting end covered with adhesive plaster. Tumour still pulsates feebly. Covered the wound with a thick compress, firmly bound down by a many-tailed bandage carried around the pelvis. Bled again from the nose to-day, showing the hemorrhagic diathesis.

25th. At 4 o'clock P. M. the wound bled a little. I removed the dressing, but no blood issued. Reapplied compresses.

26th. Finding early in the morning that blood had been oozing from the wound all night, I invited several professional friends to meet me at 9 o'clock A. M., when, on removing the dressings, the blood gushed out in a torrent. I at once tore asunder the adherent surfaces, washed out the wound with a solution of sulphate of zinc, and brought the ischiatic artery fairly into view. The blood flowed from just above the seat of ligature. Bits of lint were applied to the bleeding point, and the wound well packed with them after the manner suggested by Dr. Mott, so as effectually to arrest the hemorrhage. The patient being very much exhausted, was then turned upon the back, and brandy given him. In consultation with the physicians present, it was determined to proceed at once to take up the common iliac artery. Being indisposed at the time, I requested my friend, Dr. Wm. J. Holt, late surgeon in the Crimean war, to perform the operation, which he did. The patient's feeble state deterred us from using any anæsthetic. He was on the verge of syncope during the whole time of the operation, and vomited several times before its completion, although he lost no blood. The peritoneum was wounded in consequence of his movements. The artery having been tied, the wound was closed by quill sutures; compresses dipped in cold water applied over the abdomen and ordered to be kept cool; brandy and laudanum was administered; and the patient allowed to rest.

27th. Passed a comfortless night; took one gr. opium every five or six hours, with a sufficient quantity of brandy; but gulped up continually whatever he took of broth or other drink; pulse bad; temperature of limb normal; no hemorrhage; some tenderness of abdomen; ordered opium pills, toddy, broth, iced water, and cold cloths to the abdomen to be continued.

28th. Evidently sinking; pulse feeble and frequent; still gulps up everything; limb warm; feels relieved of all soreness and thinks himself better.

29th. Died at 4 o'clock A. M. No post-mortem examination made.

Ligation of both Common Carotid Arteries, at an interval of seventeen days, for Epilepsy.—Dr. GUSTAV C. E. WEBER reports (*Cleveland Med. Gaz.*, Oct., 1859) a case of this. The subject of it was a German, twenty years of age, who had been the victim to epilepsy for five years. When he entered the Cleveland City Infirmary his attacks came on daily; but his constitution seemed to have suffered very little, and his intellectual powers were not diminished. The patient not having been benefited by treatment, Dr. Weber determined to ligate the left common carotid artery. This was performed on the 2d December, 1857. The artery was secured below the omohyoid muscle. The ligature was tightened gradually and slowly, and produced no untoward cerebral disturbance. Twelve days after the operation the ligature came away, and a few days afterwards the wound closed entirely.

For seven days the patient was free from fits, felt completely relieved from his former distressing symptoms. The headache was gone, the paresis of the arm disappeared, and he could speak as distinctly as any one.

On the eighth day after ligation of the artery the patient had three fits, and subsequently they became frequent, though not so severe as before.

Thinking the first operation had benefited the patient, Dr. W. decided to take up the other carotid—which was done on the seventeenth day after the first.

"For five weeks after this second operation," says Dr. W., "the patient was entirely free from fits. They then returned for a time daily, and very lightly indeed, consisting, in fact, simply of short moments of unconsciousness, and a few convulsive movements of the muscles. Gradually they increased in severity, but diminished in number. For more than half a year he had an attack only once a week, or every two weeks. Since then again, they became slowly more frequent, and now, nearly two years after the first surgical interference, he has an attack every two or three days. They are, however, by far not so violent as they were before the arteries were taken up."

The patient enjoys good health, "but his intellect seems to become a little impaired;" and Dr. W. says he entertains no doubt but that in time he will become idiotic.

[The result of this case seems to us to afford little encouragement for an imitation of this practice.]

Ligature of the Femoral Artery for the Cure of Elephantiasis of the Leg and Foot.—Dr. T. L. Ogier reports (*Charleston Med. Journ.*, March, 1860) a case of elephantiasis of the leg and foot, of enormous size, which had existed for five years, in a negro man, twenty-six years of age, in which he applied a ligature to the femoral. At the time of the report, three months since the operation, it is stated that "the leg and foot have subsided to very nearly the natural size."

It is to be hoped that the subsequent history of the case may be made known. In Dr. Carnochan's case, supposed by Dr. O. to have been cured, the disease, as already stated (see pp. 474-475 in this number), returned.

Ligature of the Subclavian.—Dr. Shrady reports (*New York Journ. Med.*, Jan., 1860) a case of aneurism in the right axilla, resulting from a fall, admitted into the New York Hospital, for which Prof. Parker applied a ligature to the subclavian. The patient died on the fourth day.

Tracheotomy in Croup.—Dr. Voss records (*New York Journ. Med.*) fourteen cases of croup, in which he resorted to tracheotomy. Of these, five recovered and nine died. Of the patients, eight were boys, of whom two only recovered; of the six girls, three recovered.

Ovariotomy in Ohio.—Prof. J. W. Hamilton, in his report made to the Ohio Medical Society (*Ohio Med. and Surg. Journal*, Nov., 1859), has collected an account of the operations for ovarian disease performed in Ohio.

He states that ovariotomy has been performed or attempted forty-two times, where the operator and patient belonged to Ohio; in eight cases by Ohio surgeons upon patients residing in other States, and one on a resident of Ohio by a surgeon of an adjoining State, making a total of fifty-one cases.

In thirteen cases extirpation was impracticable; in seven of these the attempt was evidently the cause of death.

In thirty-seven cases extirpation was accomplished; in sixteen of these death was evidently caused by the operation. In twenty cases recovery took place.

Fracture at the Base of the Cranium; Discharge of Blood and Brain from the External Ear; Recovery.—In our number for April last will be found a case by Dr. Lockwood, of recovery after an accident of this kind. A similar case, with the same fortunate result, is recorded by Dr. E. B. Haskins, of Clarksville, Tenn., in the *Nashville Medical Record* for October, 1859. The subject of the latter was a boy, three years of age, who fell eighteen feet, on a hard surface.

Penetrating Wound of the Brain.—Mr. G. Devron, resident student of the Charity Hospital, N. O., reports (*N. O. Med. News and Hosp. Gaz.*, Feb., 1860) the following remarkable case of this:—

"Laurent Fleury, native of France, aged twenty-nine years, blacksmith, entered the Charity Hospital on the morning of the 7th of November, 1859, with three apparently slight wounds, said to have been inflicted by a couple of women, about 1 P. M. that day. The wounds were situated as follows: one on the left occipito-parietal region, one on the face, and one on the left shoulder. They were all dressed with strips of adhesive plaster. As that on the scalp was bleeding profusely, a styptic preparation was used, and it was then dressed. The patient returned home the same evening, but next day he was readmitted into the hospital, complaining of his throat. Examination showed that in the melee he had evidently been strangled, as his tongue was much swollen, and he felt some pain when speaking. The wounds above described were cleansed and redressed; a light diet and rest were prescribed, and that day he sat up and took his meals without complaining of any pain. Next morning he remained in bed, but did not complain of pain; only felt weak. He also stated that he had rested well all night.

"At 11 A. M. he complained of headache, and was somewhat sleepy; and now he gradually lapsed into a state of coma, and died on the 9th, at 8 P. M.

"The next day, while assisting Dr. Hart, city physician, in making a post-mortem examination, on enlarging the wound of the head, to search for fracture of the skull, I discovered a black substance, resembling iron, on a level with the external plate of bone. I attempted to remove it, but found that great force would be necessary. I then excised a segment of the surrounding scalp, and, on removing a corresponding segment of the bone, found that the foreign substance was the blade of a pocket-knife, which had been driven through and broken off near the handle, and was penetrating the brain to the depth of two inches, at a point nearly corresponding to the junction of the sagittal and lambdoidal sutures. There was no blood effused internally, but some clear liquid. The brain at this point seemed softer than in the opposite lobe."

Turpentine in Stomatitis Materna.—Dr. D. S. BRANDON, of Georgia (*Southern Med. and Surg. Journ.*, Jan., 1860), extols the efficacy of the oil of turpentine in the treatment of stomatitis materna. He gives the oil in the dose of twelve drops three or four times a day. If there be constipation he prescribes a dose of castor oil, and if there be diarrhœa present combines laudanum with the turpentine. He says this treatment has proved very efficient in his hands.

Labour, with the Hymen Unbroken.—Dr. JOHN YALE records (*Boston Med. and Surg. Journal*, Nov. 10, 1859) a remarkable case of this in an Irishwoman, eighteen years of age, who had been married ten months. On examination, the hymen was felt to be in a state of cartilaginous hardness, and no aperture could be found by the finger in the vagina. Through the rectum, the inclosed waters were felt slightly protruding into the vagina, with the head entering the superior strait. In two hours the membranes ruptured, and the waters discharged into the vagina, producing a bulging of the hymen outward, not unlike in feeling to the unbroken bag of waters. A slight moisture only was felt on the external parts. A probe was now carried on the end of the finger in search of an orifice to be enlarged by incision, but in vain. A less forcible pressure, however, by the finger point, than had been used, broke through the hymen, it having been apparently thinned and macerated by the progress of labour. The waters gushed forth, and the child soon followed.

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GRADUATES OF JEFFERSON MEDICAL COLLEGE OF PHILADELPHIA.

March, 1860.

At a Public Commencement, held on the 12th of March, 1860, the degree of Doctor of Medicine was conferred on the following gentlemen by the Hon. Edward King, LL. D., President of the Institution; after which a Valedictory Address to the Graduates was delivered by Prof. Gross.

NAME.	STATE OR COUNTRY.	SUBJECT OF THESIS.
Abercrombie, George A	Alabama.	Signs of Pregnancy.
Adair, J. Todd	Pennsylvania.	Iodide of Potassium.
Adams, Patrick H.	South Carolina.	Plastic Matter.
Addison, William J.	Maryland.	Stricture of the Urethra.
Andrews, A. E.	Georgia.	Stimulants
Arnold, A. E.	Louisiana.	Physiology of Death.
Atkins, William L.	Kentucky.	Scarlet Fever.
Bache, Dallas	Dist. of Columbia.	Pathological Physiognomy.
Bailey, L. Philip	Virginia.	Effects of Onanism.
Barksdale, M. S.	Virginia.	Variola.
Bass, James P.	Tennessee.	Nutrition.
Bass, Joseph F.	Virginia.	Cephalalgia.
Beesley, James P.	Mississippi.	Digestion.
Bigelow, Robert J.	Florida.	Scarlatina Maligna.
Bishop, Milton	Georgia.	Ipecacuanha.
Blackwell, Nicholas	Mississippi.	Typhoid Pneumonia.
Blanck, George A.	Pennsylvania.	Duty of the Obstetrician in Natural Labor.
Blocker, John E.	Georgia.	Enteric Fever.
Brinton, Daniel G.	Pennsylvania.	Supposed Pathological Influence of the Moon.
Burkhalter, Charles M.	South Carolina.	Acute Dysentery.
Buterbaugh, John (M. D.)	Maryland.	Acute and Chronic Metritis.
Butler, L. M.	Florida.	Yellow Fever.
Butler, Matthew M.	Tennessee.	Glance at the Science of Medicine.
Butts, Judson A.	Georgia.	Sulphuric Acid.
Campbell, Marcus	Texas.	Yellow Fever.
Campbell, Robert	Virginia.	Therapeutic Application of Cold in Fevers.
Chandler, Joseph H.	Delaware.	Treatment of Laryngitis.
Childs, Benjamin F.	Georgia.	Tertiary Syphilis
Clendenin, William G.	North Carolina.	Vitality of the Blood.
Cline, Godfrey H.	Pennsylvania.	Apoplexy.
Coates, Benjamin F.	Ohio.	Dysentery.
Cochran, E. C.	Tennessee.	Malarious Diseases of East Tennessee.
Collins, May B.	Missouri.	Young Doctor and his Profession.
Comstock, Lucius L.	Ohio.	Mania a potu.
Cooper, James D.	Virginia.	Physiology of the Circulation.
Cooper, John Atchison	Kentucky.	Aneurism.
Cowin, John H.	Alabama.	Croup.
Crawford, John D.	Virginia.	Menstruation.
Cunningham, John S.	Pennsylvania.	Death from Faulty Innervation of the Pneumogastric Nerve.
Davis, William N.	Pennsylvania.	Syphilis.
Deane, James S.	Arkansas.	Pneumonia.
Delany, Alfred	Pennsylvania.	Cynanche Trachealis.
Dennis, Jacob M.	Virginia.	Phthisis Pulmonalis.
Dixon, John	Alabama.	Abortion.
Dula, F. G.	North Carolina.	Injuries of Intemperance.
Duncan, Thomas F.	Pennsylvania.	Scarlatina.
Dunlap, B. G.	North Carolina.	Tobacco.
Dunlap, James C.	Virginia.	Mercury.
Elkin, Thomas B.	Mississippi.	Pleuritis.
Evans, William E.	Missouri.	Enteric Fever.

NAME.	STATE OR COUNTRY.	SUBJECT OF THESIS.
Fairleigh, Robert M.	Kentucky.	Conservative Pathology.
Farnham, Horace P.	Massachusetts.	Bones of the Forearm, and their Fractures.
Ferguson, James E.	Virginia.	Syphilis.
Fischer, Albert W.	Pennsylvania.	Scarlatina.
Foster, Z. N.	Mississippi.	Bilious Remittent Fever.
Fulton, Saunders	North Carolina.	Abortion.
Gaines, John M. (M. D.)	Virginia.	Course, &c., of the Vas Deferens.
Gaither, W. W.	North Carolina.	The Doctor of Medicine.
Gano, R. Ewing	Kentucky.	Function of Reproduction.
Gibboney, S. Rush	Pennsylvania.	Gangrene.
Gordon, John	Mississippi.	Symptomatology.
Graham, Daniel McL.	North Carolina.	Diabetes Mellitus.
Greene, Frank M.	Kentucky.	Placenta Prævia.
Hagerson, Angus C.	Georgia.	Pneumonia.
Hanks, George M.	Georgia.	Yellow Jessamine.
Harris, Alonzo F.	Alabama.	Primary Syphilis.
Hatler, Morris (M. D.)	Missouri.	Typhoid Fever.
Hedgepeth, Josiah	North Carolina.	Amenorrhœa.
Henderson, C. R.	Mississippi.	Congestive Fever.
Hendry, Bowman	New Jersey.	Pneumonia.
Hereford, Thomas P., Jr.	Virginia.	Intermittent Fever.
Hoover, David W.	Pennsylvania.	Dyspepsia.
Hornback, William	Missouri.	Bilious Remittent Fever.
Hunter, Charles J.	Virginia.	Phthisis.
Hunter, George W.	Virginia.	Organs of Digestion.
Hynds, S. Houston	Tennessee.	Signs of Pregnancy.
Ingalls, P. P.	Maine.	Bronchitis.
Ingram, William A.	North Carolina.	Dysmenorrhœa.
Jackson, G. A.	Virginia.	Dysentery.
Johnson, F. F.	Illinois.	Gunshot Wounds.
Jones, John M.	Pennsylvania.	Difference between the Vegetable and Animal Kingdoms.
Jones, Montfort	Virginia.	Hernia.
Judkins, George B.	Alabama.	Compression of the Brain.
Kelley, William I.	Ohio.	Medicine as a Science and an Art.
Kerns, George M.	Georgia.	Apocynum Cannabinum, or Indian Hemp.
King, William, Jr.	Georgia.	Tonsillitis.
Knickerbocker, Boliver	Pennsylvania.	The Reparative Process.
Lackey, Benjamin F.	Tennessee.	Hernia.
Langenderfer, J. R.	New Jersey.	Scrofula.
Lester, James R.	Tennessee.	Enteric Fever.
Lever, John D. F.	South Carolina.	Erysipelas.
Lewis, Daniel W.	North Carolina.	Remittent Fever.
Loftin, James Merrill	Georgia.	Pulmonitis.
Mace, William G.	South Carolina.	Indigestion.
Mann, Augustine A.	Massachusetts.	Enteric Fever.
Mapp, John L.	Georgia.	Typhoid Fever.
Martin, Robert S. (M. D.)	Missouri.	Corn as an Antiperiodic.
Mathews, Fleming J.	Georgia.	Prolapsus Uteri.
Maynard, S. S.	Maryland.	Polypus Uteri.
McAdory, James S.	Alabama.	Inflammation.
McCullough, Joseph W.	Delaware.	Infantile Hygiene.
McHatton, A. H. (M. D)	Missouri.	Rheumatism.
McKinney, David	Pennsylvania.	Scarlatina.
McNite, William P.	Pennsylvania.	Intermittent Fever.
Mitchell, G. W.	Pennsylvania.	Typhoid Fever.
Moffitt, William J.	Tennessee.	Function of Respiration.

NAME.	STATE OR COUNTRY.	SUBJECT OF THESIS.
Morgan, Ellington J.	Georgia.	Pneumonia.
Morris, William Wade	Virginia.	Inflammation.
Morton, Charles B.	Virginia.	Scarlatina.
Mulholland, David	Missouri.	Intermitting Fever.
Nelson, Thomas W.	Virginia.	Variola.
Nelson, William W.	Iowa.	Cholera Infantum.
Nichols, Pennock J.	Pennsylvania.	Rubeola.
Nicholson, Hugh W.	Georgia.	Retroversion of the Womb.
Norris, Alonzo	New York.	Inversio Uteri.
Owen, George A.	Virginia.	The Placenta.
Owen, W. T.	Virginia.	Delirium Tremens.
Parham, R. J.	Mississippi.	Acute Enteritis.
Perchment, Albert H.	Pennsylvania.	Enteric Fever.
Phillips, N. D.	Mississippi.	Spermatorrhœa.
Pusey, Robert B.	Kentucky.	Traumatic Tetanus.
Pyles, Newton C.	Tennessee.	Pus.
Ralston, Robert G.	Pennsylvania.	Typhoid Fever.
Roberts, George H.	Maryland.	Amenorrhœa.
Roberts, William H. H.	Georgia.	True Aims of the Physician.
Robinson, L. W.	North Carolina.	Inflammation.
Rowell, E. H.	Alabama.	Bilious Remittent Fever.
Rudisill, Benjamin F.	Georgia.	Yellow Fever.
Rushing, Greenwood	Mississippi.	Croup.
Sale, John Alexander	Virginia.	Dysentery.
Saunders, Samuel A.	Arkansas.	Typhoid Fever
Sellers, Hiram F.	Pennsylvania.	Diarrhœa.
Seydel, Arthur	Nicaragua.	Epidemic Cholera.
Shaffner, John F.	North Carolina.	Arsenic and its Compounds.
Shaw, Daniel W.	North Carolina.	Biliary Calculi.
Silvis, George W.	Pennsylvania.	Rubeola.
Sim, J. Thomas	Maryland.	Retroversio Uteri.
Spang, Frederick K.	Pennsylvania.	Veratrum Viride.
Stewart, Clayton M. (M. D.)	Illinois.	Dropsy.
Stewart, Elam L.	Illinois.	Milk Sickness.
Stuart, Robert	Kentucky.	Variola.
Taggart, John F.	Indiana.	Treatment of Pneumonia.
Tate, Thomas J.	Alabama.	Gonorrhœa.
Taylor, Daniel W.	Indiana.	The Devotee of Medicine.
Taylor, Frederick S.	New York.	Dyspepsia.
Thomas, William T.	South Carolina.	Tobacco.
Thompson, Davis	Tennessee.	Modus Operandi of Medicines.
Thompson, W. P.	Alabama.	Opium.
Tilman, J. R. (M. D.)	Indiana.	The Mind.
Tilman, Joel S.	Indiana.	Uterine Hemorrhage.
Van Buskirk, Joseph T.	Virginia.	Bilious Remittent Fever.
Walker, Fleetwood	Georgia.	Hepatitis.
Walker, Frank	Virginia.	Treatment of Inflammation.
Walker, William J.	Alabama.	Auscultation and Percussion.
Wallis, Hugh Maxwell	Maryland.	Theory and Practice of Medicine.
Wallis, Robert S. (M. D.)	Missouri.	Infantile Remittent Fever.
Warren, Llewellyn P.	North Carolina.	The Catamenial Flow, a Secretion or a Hemorrhage?
Warren, William C.	Virginia.	Amenorrhœa.
Watson, Andrew J.	Kentucky.	Dysentery.
Watts, David A.	Kentucky.	Spermatorrhœa.
Weldon, Andrew J.	Tennessee.	Pneumonitis.
Wheeler, Levi L.	Pennsylvania.	Dyspepsia.

NAME.	STATE OR COUNTRY.	SUBJECT OF THESIS.
Willcoxon, James	Georgia.	Stricture of the Urethra.
Wingo, Thomas R.	Tennessee.	Intermittent Fever.
Wood, Eason B.	Alabama.	Pneumonia.
Word, James C.	Mississippi.	Typhoid Fever.
Wright, Joseph P.	Pennsylvania.	Diagnosis of the Syphilides.
Yantis, Robert H.	Kentucky.	Blood and its Executive Duties.
Yeomans, George	Pennsylvania.	Medicine a Science.
Zacharias, J. Forney	Maryland.	Diseases of the Knee-joint.

Of the above, there are from—

Pennsylvania	25	Maryland	7	New Jersey	2
Virginia	24	South Carolina	5	New York	2
Georgia	18	Indiana	4	Louisiana	1
North Carolina	13	Ohio	3	District of Columbia	1
Alabama	11	Illinois	3	Texas	1
Tennessee	11	Florida	2	Maine	1
Mississippi	10	Delaware	2	Iowa	1
Kentucky	10	Arkansas	2	Nicaragua	1
Missouri	8	Massachusetts	2		170

HARVARD UNIVERSITY.

SUMMER SESSION OF THE MEDICAL DEPARTMENT.

The Annual Course of Summer Instruction in the Medical Department of Harvard University will commence at the Massachusetts Medical College, in North Grove Street, Boston, on Monday, March 12, 1860, and continue till November.

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Oliver W. Holmes, M. D.,	Professor of Anatomy and Physiology.
George C. Shattuck, M. D.,	Hersey Professor of Theory and Practice of Medicine.
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John Bacon, M. D.,	Professor of Chemistry.
Edward H. Clarke, M. D.,	Professor of Materia Medica.

Richard M. Hodges, M. D., Demonstrator and Assistant in Surgery.

Wm. E. Coale, M. D.,	Assistant in Theory and Practice.
Calvin Ellis, M. D.,	Assistant in Morbid Anatomy.
James C. White, M. D.,	Assistant in Chemistry.
J. Nelson Borland, M. D.,	Assistant in Clinical Medicine.

Tickets to the Session must be procured before Students will be admitted to the Course.

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